

**Slovenská technická univerzita v Bratislava  
Fakulta chemickej a potravinárskej technológie  
Ústav informatizácie, automatizácie a matematiky**

**SÚBOR PODKLADOV PRE HABILITAČNÉ KONANIE  
Ing. Michal Kvasnica, PhD.**

**Bratislava, 2011**



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## **Životopis**



## Odborný životopis

**Osobné údaje:** Michal Kvasnica  
nar. 20.6.1977 v Považskej Bystrici  
slobodný  
bydlisko: Zábreh 1543/87, 020 01 Púchov

**Funkčné zaradenie:** vedecko-výskumný pracovník

### Akademické a vedecké hodnosti

- Ing: 2000, FCHPT STU v Bratislave, odbor Riadenie procesov
- PhD: 2008, ETH Zurich, odbor Riadenie procesov

### Vzdelanie

- 1991-1995: Gymnázium 1. mája v Púchove
- 1995-2000: FCHPT STU v Bratislave, diplomová práca "Optimálne spätnoväzbové riadenie laboratórneho chemického reaktora s exotermickou reakciou"
- 2003-2008: ETH Zurich, dizertačná práca "Efficient Software Tools for Control and Analysis of Hybrid Systems"

### Výskum

- Prediktívne a optimálne riadenie
- Implementácia riadenia v reálnom čase
- Modelovanie a analýza hybridných systémov
- Vývoj softvérových nástrojov pre účely riadenia

### Priebeh zamestnania

- 2000-2001: asistent na FCHPT STU v Bratislave, Katedra automatizácie
- 2001-2006: odborný asistent na ETH Zurich, Automatic Control Laboratory
- 2006-: vedecko-výskumný pracovník na FCHPT STU v Bratislave, Ústav informatizácie, automatizácie a matematiky

### Výskumné pobyty

- 6/2000: LAAS CNRS Toulouse, Francúzsko (D. Henrion)
- 3/2007: LAAS CNRS Toulouse, Francúzsko (D. Henrion)
- 6/2008: University of Linköping, Linköping, Švédsko (J. Löfberg)
- 8/2010: NTNU Trondheim, Nórsko (S. Skogestad)

### Ocenenia

- Najlepší mladý vedecko-výskumný pracovník FCHPT STU v Bratislave za rok 2008
- Najlepšia prednáška v sekcii na American Control Conference, Baltimore, USA, 2010

### Publikačná aktivita

- Publikácie vo vedeckých a odborných časopisoch: 8 (z toho 4 CC)
- Publikácie v zborníkoch z konferencií: 54
- Monografie: 1
- Kapitoly v monografiách: 3
- Celkové citačné ohlasy: 305 (z toho 145 SCI)

### **Riešenie projektov**

- Zodpovedný riešiteľ VEGA projektov: 1
- Člen riešiteľského kolektívu APVV projektov: 2
- Člen riešiteľského kolektívu VEGA projektov: 2
- Člen riešiteľského kolektívu KEGA projektov: 1
- Člen riešiteľského kolektívu EU FP6 projektov: 1

### **Vedecké aktivity**

- Usporiadateľ workshopu o softvérových nástrojoch pre prediktívne riadenie na Swedish Control Conference, Lund, 2010
- Usporiadateľ workshopov o explicitnom prediktívnom riadení na konferenciách Process Control 2007, 2009 a 2011
- Člen národného organizačného výboru konferencie Process Control 2007, Štrbské Pleso
- Predseda národného organizačného výboru konferencií Process Control 2009 a 2011
- Vedenie sekcií medzinárodných konferencií pod záštitou IEEE
- Recenzent pre časopisy Automatica, IEEE Transactions on Automatic Control, IEEE Transactions on Control Systems Technology, Control Engineering Practice

### **Jazykové schopnosti**

- angličtina (aktívne)
- nemčina (pasívne)

V Bratislave, 29.4.2011

Michal Kvasnica



## **Sumárny prehľad pedagogickej a vedeckovýskumnej činnosti k žiadosti o habilitačné konanie**



**SLOVENSKÁ TECHNICKÁ UNIVERZITA V BRATISLAVE**  
**Fakulta chemickej a potravinárskej technológie**

**SUMÁRNÝ PREHĽAD PEDAGOGICKEJ A VEDECKOVÝSKUMNEJ ČINNOSTI  
K ŽIADOSTI O HABILITAČNÉ KONANIE**

**v študijnom odbore (číslo a názov odboru): 5.2.14 Automatizácia**

Meno: Michal Kvasnica

Funkčné zaradenie: vedecko-  
výskumný pracovník

Narodený (dátum a miesto):  
20.6.1977 v Považskej Bystrici

Pracovisko: ÚIAM FCHPT

Akademické a vedecké hodnosti:  
(titul, rok získania, odbor)  
Ing., 2000, riadenie procesov (FCHPT STU)  
PhD., 2008, riadenie procesov (ETH Zurich)

Priebeh zamestnania:  
2000-2001: FCHPT STU  
2001-2006: ETH Zurich  
2006- FCHPT STU

**1) Pedagogická činnosť**

1.1 Prednášky ( predmet, obdobie – akademické roky od-do, rozsah - počet semestrov a počet hodín týždenne):

Predmet	Obdobie	Počet semestrov	Počet hodín za týždeň
Projektovanie informačných a riadiacich systémov	07/08 - 10/11	4	2
Informatizácia a priemyselné informačné systémy I	08/09 - 10/11	3	1
Informatizácia a priemyselné informačné systémy II	08/09 - 09/10	2	2
Prediktívne riadenie	09/10 - 10/11	2	2

1.2 Seminára a laboratórne cvičenia (predmet, obdobie – akademické roky od-do, rozsah - počet semestrov a počet hodín týždenne):

Predmet	Obdobie	Počet semestrov	Počet hodín za týždeň
Laboratórne cvičenia zo základov automatizácie	00/01	1	2
Fachpraktikum (ETH Zurich)	02/03	2	3
Nonlinear control (ETH Zurich)	03/04 - 04/05	2	2
Control systems (ETH Zurich)	03/04	1	2

Predmet	Obdobie	Počet semestrov	Počet hodín za týždeň
Projektovanie informačných a riadiacich systémov	07/08 - 08/09	2	3
Integrované riadenie v procesnom priemysle	07/08	1	2
Informatizácia a priemyselné informačné systémy I	08/09 - 09/10	2	2

- 1.3 Vedenie doktorandov (počet): **4** ako školiteľ-špecialista
- 1.4 Vedenie diplomantov (počet): **6**
- 1.5 Vedenie semestrálnych projektov pre bakalárov (počet): **14**
- 1.6 Vedenie študentov v rámci ŠVOČ (počet, príp. umiestnenie vo fakultnom, resp. bývalom celoštátnom kole): **3**
- 1.7 VŠ učebnice (počet): ---
- 1.8 Skriptá: ---

## 2) Publikačná a iná vedecká aktivita (uviesť počty)

(Zoznam publikačnej činnosti sa spracúva podľa Smernice č. 13/2008 o bibliografickej registrácii a kategorizácii publikačnej činnosti a ohlasov)

- 2.1 Pôvodné vedecké práce v časopisoch registrovaných v CC : **4**
  - z toho ako 1. autor: **2**
- 2.2 Pôvodné vedecké práce v literatúre abstrahovanej v Chemical Abstracts, resp. inými abstrahujúcimi časopismi (FSTA, ABIPC, atď.): ---
  - z toho ako 1. autor: ---
  - (v zozname sa uvádzajú v kategórii ADE, resp. ADF, treba **uviesť aj číslo abstraktu**)
- 2.3 Pôvodné vedecké práce v iných recenzovaných časopisoch: **4**
- 2.4 Práce v zborníkoch z vedeckých podujatí (**v zozname uvádzať aj ISBN**):
  - vo svetovom jazyku<sup>x/</sup>: **54** z toho s ISBN: **42**
  - v národnom jazyku: --- z toho s ISBN: ---
- 2.5 Monografie a kapitoly v monografiách<sup>xx/</sup>:
  - vo svetovom jazyku<sup>x/</sup>: **4** počet AH: **17**
  - v národnom jazyku: --- počet AH: ---
- 2.6 Prednášky na zahraničných vedeckých podujatiach<sup>xxx</sup> (**v zozname vyznačte osobne prednesené ako „osob.predn.“**): **11**
  - z toho: - osobne prednesené pozvané prednášky: ---
  - osobne prednesené prihlásené prednášky: **11**
- 2.7 Prednášky na domácich vedeckých podujatiach (**v zozname vyznačte osobne prednesené, ako „osob.predn.“**): **2**
  - z toho osobne prednesené: **2**
- 2.8 Postery na vedeckých podujatiach: **6**
  - zahraničných<sup>xxx/</sup>: **6**
  - domácich: ---
- 2.9 Iná vedecká aktivita (udelené patenty (AO), patentové prihlášky, zlepšovacie návrhy, priemyselné a úžitkové vzory, realizácia výsledkov v praxi (uviesť realizátora, rok realizácie, príp. ekonomický prínos), vyriešené výskumné úlohy (včítane ZoD) a pod.

2.10 Získané finančné prostriedky v **(uvádza iba zodpovedný riešiteľ)**:

Granty:

- VEGA: **13 554 EUR** (VEGA 1/0095/11)
- APVV: ---
- ŠPvAV: ---
- Iné (napr. aplikovaný výskum MŠ SR, finančný príspevok MŠ SR na medzinárodné projekty a pod.): ---

Mimorozpočtové zdroje: ---

- medzinárodné projekty: ---
- ZoD: ---

2.11 Citácie (počty):

- SCI: **143**
- knižné: **6**
- iné: **154**

(zoznam citácií sa spracúva podľa Smernice č. 13/2008 o bibliografickej registrácii a kategorizácii publikačnej činnosti a ohlasov):

Dátum: 29.4.2011

.....  
Ing. Michal Kvasnica, PhD.

.....  
prof. Ing. Miroslav Fikar, DrSc.  
riaditeľ ÚIAM

<sup>x/</sup> Za svetový jazyk sa považuje angličtina, nemčina, francúzština, španielčina, ruština

<sup>xx/</sup> Pre monografiu platí rozsah minimálne 3 AH, pre kapitolu v monografii najmenej 1AH (1 AH=20 normalizovaných strán, 1 normalizovaná strana=1800 znakov)

<sup>xxx/</sup> ČR sa považuje za zahraničie od 1.1.1993



## **Sumárna tabuľka vedeckých kritérií**





### Vedecké kritériá

Činnosť	Nutné kritérium	Jednotka	Váha	Počet	Body
Článok v časopise registrovanom v CC	x	1	4	4	16
Článok v abstrahovanom časopise	x	1	3	0	0
Článok neabstrahovaný		1	1	4	4
Publikácia v zborníku s ISBN vo svet. jazyku		1	1.5	27	40.5
Publikácia v zborníku s ISBN v nár. jazyku		1	0.5	0	0
Monografia vo svet. jazyku	x	1 AH	4	17	68
Monografia v nár. jazyku		1 AH	3	0	0
Vyžiadaná prednáška na konf. v zahraničí	x	1	4	0	0
Prednáška na konf. v zahraničí osobne prednesená		1	2	11	22
Prednáška na konf. doma osobne prednesená		1	1	2	2
Citácia SCI a knižná citácia	x	1	0.5	151	75.5
Citácia iná		1	0.2	154	30.8
Udelený patent		1	4	0	0
Financie získané z grantov		6 638.78 €	1	2	2
<b>Celkový súčet bodov</b>					<b>260.8</b>
<b>Súčet bodov za nutné kritériá</b>					<b>159.5</b>



## **Prehľad pedagogickej činnosti**



## Prehľad pedagogickej činnosti

### Prednášky

Predmet	Obdobie	Počet semestrov	Počet hodín za týždeň
Projektovanie informačných a riadiacich systémov	07/08 - 10/11	4	2
Informatizácia a priemyselné informačné systémy I	08/09 - 10/11	3	1
Informatizácia a priemyselné informačné systémy II	08/09 - 09/10	2	2
Prediktívne riadenie	09/10 - 10/11	2	2

### Semináre a laboratórne cvičenia

Predmet	Obdobie	Počet semestrov	Počet hodín za týždeň
Laboratórne cvičenia zo základov automatizácie	00/01	1	2
Fachpraktikum (ETH Zurich)	02/03	2	3
Nonlinear control (ETH Zurich)	03/04 - 04/05	2	2
Control systems (ETH Zurich)	03/04	1	2
Projektovanie informačných a riadiacich systémov	07/08 - 08/09	2	3
Integrované riadenie v procesnom priemysle	07/08	1	2
Informatizácia a priemyselné informačné systémy I	08/09 - 09/10	2	2

### Zavedenie nových predmetov a ich zabezpečenie študijnými materiálmi (4)

Predmet	Ročník	Typ materiálu
Projektovanie informačných a riadiacich systémov	3.r.	E-learningové prednášky a cvičenia
Informatizácia a priemyselné informačné systémy I	4.r.	E-learningové prednášky a cvičenia
Informatizácia a priemyselné informačné systémy II	5.r.	E-learningové prednášky
Prediktívne riadenie	5.r.	E-learningové prednášky

### Spoluvedenie doktorandských prác ako školiteľ-špecialista (4)

Obdobie	Študent	Názov práce	Školiteľ
2007-2009	Herceg, M.	Real-Time Explicit Model Predictive Control of Processes	Prof. M. Fikar
2009-	Paulovič, M.	Analýza a verifikácia hybridných systémov	Prof. M. Fikar
2010-	Rauová, I.	Robustné prediktívne riadenie hybridných systémov	Prof. M. Fikar
2010-	Szűcs, A.	Modelovanie a riadenie hybridných systémov	Prof. M. Fikar

### Vedenie diplomantov (6)

Rok	Študent	Názov práce
2007	Súkenníková, E.	Toolbox pre testovanie programov v prostredí MATLAB
2008	Beňová, G.	Spracovanie údajov z výdaja motorových palív zariadením PetrocountSMS v Oktan a.s. Kežmarok
2010	Gibaščíková, S.	A Redesign of Stabilizing Conditions for Model Predictive Control
2010	Rauová, I.	Evaluation of Different Bilevel Optimization Algorithms with Applications to Control
2010	Szűcs, A.	Software na automatickú viacnásobnú linearizáciu
2010	Taraba, R.	Systematic Method for Analysis of Performance Loss when Using Simplified MPC Formulations

### Ocenené diplomové práce (2)

- Taraba, R.: cena Slovnafu za najlepšiu diplomovú prácu roka 2010
- Rauová, I.: cenu Zväzu chemického a farmaceutického priemyslu za najlepšiu diplomovú prácu inžinierskeho štúdia v roku 2010

### Vedenie semestrálnych projektov pre bakalárov (14)

Rok	Študent	Názov práce
2008	Dzurov, J.	Univerzálne rozhranie Matlabu a SQL databázy
2008	Szabová, A.	Využitie XML-RPC v Matlabe
2008	Miklovitz, L.	Prediktívne riadenie vybraných procesov
2008	Rauová, I.	Optimálne riadenie procesov uvádzané do praxe
2008	Hulata, T.	Riadenie križovatky pomocou Stateflowu
2008	Turayová, E.	Prediktívne riadenie vybraných procesov
2008	Taraba, R.	Diskrétné riadenie v prostredí Stateflow

Rok	Študent	Názov práce
2009	Mitterpach, B.	Úvod do prediktívneho riadenia
2009	Chroustová, K.	Riadenie LEGO robotov
2009	Grancová, J.	Riadenie LEGO robotov
2009	Mičenec, L.	Modelovanie hybridných systémov
2010	Holaza, J.	Riadenie LEGO robotov
2010	Takács, B.	Riadenie LEGO robotov
2010	Drgoňa, J.	Úvod do prediktívneho riadenia

### Vedenie študentov v rámci ŠVOČ (3)

Rok	Študent	Názov práce	Umiestnenie
2010	Holaza, J.	Riadenie LEGO robotov	1. miesto v sekcii Riadenie procesov na ÚIAM FCHPT
2010	Drgoňa, J.	Konvexná optimalizácia a prediktívne riadenie s modelom	2. miesto v sekcii Riadenie procesov na ÚIAM FCHPT
2010	Takács, B.	Riadenie LEGO robotov	3. miesto v sekcii Riadenie procesov na ÚIAM FCHPT

V Bratislave, 29.4.2011

.....  
Ing. Michal Kvasnica, PhD.

.....  
prof. Ing. Miroslav Fikar, DrSc.  
riaditeľ ÚIAM





## **Prehľad publikačnej a inej vedeckej aktivity**



## Prehľad publikačnej a inej vedeckej aktivity

### Monografia vo svet. jazyku a kapitoly v monografiách (4)

AAA – Vedecké monografie vydané v zahraničných vydavateľstvách (1)

1. **Kvasnica, M.** [100%]: Real-Time Model Predictive Control via Multi-Parametric Programming: Theory and Tools, VDM Verlag, Saarbruecken, 2009, 263 s. ISBN 9783639206449 **(11 AH)**

ABC – Kapitoly vo vedeckých monografiách vydané v zahraničných vydavateľstvách (1)

2. Bemporad, A. [20%] – Di Cairano, S. [16%] – Ferrari-Trecate, G. [16%] – **Kvasnica, M.** [16%] – Morari, M. [16%] – Paoletti, S. [16%]: Tools for modeling, simulation, control, and verification of piecewise affine systems, In Handbook of Hybrid Systems Control: Theory, Tools, Applications, Editor(s): J. Lunze, F. Lamnabhi-Lagarigue, Cambridge University Press, pp. 297–324, 2009. ISBN 978-0-521-76505-3 **(1 AH)**

ABD – Kapitoly vo vedeckých monografiách vydané v domácich vydavateľstvách (2)

3. **Kvasnica, M.** [100%]: Multi-Parametric Toolbox, In Selected Topics on Constrained and Nonlinear Control. Workbook, STU Bratislava - NTNU Trondheim, pp. 101–170, 2011. ISBN 978–80–968627–3–3 **(3 AH)**
4. **Kvasnica, M.** [40%] – Fikar, M. [10%] – Čirka, L. [40%] – Herceg, M. [10%]: Complexity Reduction in Explicit Model Predictive Control, In Selected Topics on Constrained and Nonlinear Control. Textbook, STU Bratislava - NTNU Trondheim, pp. 241–288, 2011. ISBN 978–80–968627–4–0 **(2 AH)**

### Článok v časopise registrovanom v CC (4)

ADC – Vedecké práce v zahraničných karentovaných časopisoch (3)

1. **Kvasnica, M.** [60%] – J. Lofberg [20%] – M. Fikar [20%]: Stabilizing Polynomial Approximation of Explicit MPC. Automatica, 2011, akceptované.
2. Herceg, M. [40%] – **Kvasnica, M.** [30%] – Fikar, M. [30%]: Minimum-time predictive control of a servo engine with deadzone. Control Engineering Practice, no. 11, vol. 17, pp. 1349–1357, 2009.
3. Grieder, P. [25%] – **Kvasnica, M.** [25%] – Baotic, M. [25%] – Morari, M. [25%]: Stabilizing low complexity feedback control of constrained piecewise affine systems. Automatica, vol. 41, issue 10, pp. 1683–1694, 2005.

ADD – Vedecké práce v domácich karentovaných časopisoch (1)

4. **Kvasnica, M.** [70%] – Herceg, M. [10%] – Čirka, L. [10%] – Fikar, M. [10%]: Model predictive control of a CSTR: A hybrid modeling approach. Chemical papers, no. 3, vol. 64, pp. 301–309, 2010.

### Článok v inom recenzovanom časopise (4)

ADF – Vedecké práce v domácich nekarentovaných časopisoch (4)

1. Herceg, M. [40%] – **Kvasnica, M.** [30%] – Fikar, M. [20%] – Čirka, L. [10%]: Real-time Control of a Thermo-Optical Device Using Polynomial Approximation of MPC Scheme. AT&P Journal Plus, no. 2, pp. 36–42, 2009.

- Herceg, M. [25%] – **Kvasnica, M.** [25%] – Čirka, Ľ. [25%] – Fikar, M. [25%]: Real-Time Predictive Control of a Servo Engine. AT&P Journal, no. Plus2, pp. 124–130, 2007.
- Herceg, M. [34%] – **Kvasnica, M.** [33%] – Fikar, M. [33%]: Stabilizing Predictive Control of Fuzzy Systems Described by Takagi-Sugeno Models. AT&P Journal, no. Plus2, pp. 105–111, 2007.
- Mikleš, J. [50%] – Čirka, Ľ. [25%] – **Kvasnica, M.** [25%]: Design of a PI LQ controller via static feedback (in Slovak). AT&P Journal, no. 10, vol. 7, pp. 54–55, 2000.

## Publikácia v zborníku vo svet. jazyku (54)

AEC – Vedecké práce v zahraničných recenzovaných vedeckých zborníkoch, monografiách (1)

- Herceg, M. [40%] – **Kvasnica, M.** [30%] – Fikar, M. [30%]: Parametric Approach to Nonlinear Model Predictive Control, In Nonlinear Model Predictive Control, Editor(s): Magni, L. and Raimondo, D. M. and Allgoewer, F., Springer Berlin / Heidelberg, pp. 381–389, 2009. ISBN 978-3-642-01093-4

AED – Vedecké práce v domácich recenzovaných vedeckých zborníkoch, monografiách (5)

- Kvasnica, M.** [60%] – Rauová, I. [20%] – Fikar, M. [20%]: Separation Functions used in Simplification of Explicit MPC Feedback Laws. In Selected Topics on Constrained and Nonlinear Control. Preprints, STU Bratislava - NTNU Trondheim, pp. 303–308, 2011. ISBN 978-80-968627-2-6
- Kvasnica, M.** [60%] – Herceg, M. [10%] – Čirka, Ľ. [20%] – Fikar, M. [10%]: Robust Explicit Time-Optimal Control of PWA Systems with Parametric Uncertainties. In Selected Topics on Constrained and Nonlinear Control. Preprints, STU Bratislava - NTNU Trondheim, pp. 295–300, 2011. ISBN 978-80-968627-2-6
- Kvasnica, M.** [60%] – Rauová, I. [30%] – Fikar, M. [10%]: Real-Time Implementation of Model Predictive Control Using Automatic Code Generation. In Selected Topics on Constrained and Nonlinear Control. Preprints, STU Bratislava - NTNU Trondheim, pp. 311–316, 2011. ISBN 978-80-968627-2-6
- Kvasnica, M.** [50%] – Herceg, M. [10%] – Čirka, Ľ. [30%] – Fikar, M. [10%]: Explicit Minimum-Time Controllers for Fuzzy Systems. In Selected Topics on Constrained and Nonlinear Control. Preprints, STU Bratislava - NTNU Trondheim, pp. 287–292, 2011. ISBN 978-80-968627-2-6
- Kvasnica, M.** [50%] – Szűcs, A. [40%] – Fikar, M. [10%]: Automated Piecewise Affine Approximation of Nonlinear Systems. In Selected Topics on Constrained and Nonlinear Control. Preprints, STU Bratislava - NTNU Trondheim, pp. 319–326, 2011. ISBN 978-80-968627-2-6

AFC – Publikované príspevky na zahraničných vedeckých konferenciách (29)

- Kvasnica, M.** [60%] – Fikar, M. [40%]: Performance-Lossless Complexity Reduction in Explicit MPC. In Proceedings of the 49th IEEE Conference on Decision and Control 2010, pp. 5270–5275, 2010. ISBN 978-1-4244-7744-9 (**osobne prednesené**)
- Kvasnica, M.** [90%] – Fikar, M. [10%]: Design and Implementation of Model Predictive Control using Multi-Parametric Toolbox and YALMIP. In Proceedings of the 2010 IEEE International Symposium on Computer-Aided Control System Design, Yokohama, Japan, pp. 999–1004, 2010. ISBN 978-1-4244-5355-9 (**osobne prednesené**)
- Kvasnica, M.** [70%] – Rauová, I. [10%] – Fikar, M. [20%]: Automatic Code Generation for Real-Time Implementation of Model Predictive Control. In Proceedings of the 2010 IEEE International Symposium on Computer-Aided Control System Design, Yokohama, Japan, pp. 993–998, 2010. ISBN 978-1-4244-5355-9 (**osobne prednesené**)
- Kvasnica, M.** [65%] – Löfberg, J. [10%] – Herceg, M. [10%] – Čirka, Ľ. [5%] – Fikar, M. [10%]: Low-Complexity Polynomial Approximation of Explicit MPC via Linear Programming. In Proceedings of the American Control Conference, Baltimore, USA, pp. 4713–4718, 2010. ISBN 978-1-4244-7425-7 (**osobne prednesené**)
- Kvasnica, M.** [40%] – Rauová, I. [30%] – Fikar, M. [30%]: Real-time Implementation of MPC on Low-cost Hardware. In Proceedings of the 9th International Scientific - Technical Conference Process Control 2010, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. C116a-1–C116a-11, 2010. ISBN 978-80-7399-951-3
- Čirka, Ľ. [25%] – Kalúz, M. [25%] – **Kvasnica, M.** [25%] – Fikar, M. [25%]: Virtual Laboratory. In Proceedings of the 9th International Scientific - Technical Conference Process Control 2010, University

- of Pardubice, Kouty nad Desnou, Czech Republic, pp. C029a - 1–C029a - 8, 2010. ISBN 978-80-7399-951-3
13. **Kvasnica, M.** [50%] – Fikar, M. [50%]: Advances in Real-Time Model Predictive Control. In Proceedings of the 9th International Scientific - Technical Conference Process Control 2010, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. C012a-1–C012a-19, 2010. ISBN 978-80-7399-951-3
  14. Čirka, L. [25%] – Bakošová, M. [25%] – **Kvasnica, M.** [25%] – Fikar, M. [25%]: Internet Module for Process Modelling and Simulation. In Principia Cybernetica 2010, Technická univerzita v Liberci, Liberec, Česká republika, pp. 22–26, 2010. ISBN 978-80-7372-639-3
  15. **Kvasnica, M.** [70%] – Herceg, M. [10%] – Čirka, L. [10%] – Fikar, M. [10%]: Robust Adaptive Minimum-Time Control of Piecewise Affine Systems. In Proceedings of the 48th IEEE Conference on Decision and Control, pp. 2454–2459, 2009. ISBN 978-1-4244-3872-3 (**osobne prednesené**)
  16. **Kvasnica, M.** [60%] – Herceg, M. [20%] – Čirka, L. [10%] – Fikar, M. [10%]: Time-Optimal Control of Takagi-Sugeno Fuzzy Systems. In Proceedings of the 10th European Control Conference, Budapest, Hungary, pp. 916–921, 2009. ISBN 978-963-311-369-1 (**osobne prednesené**)
  17. **Kvasnica, M.** [60%] – Herceg, M. [20%] – Čirka, L. [10%] – Fikar, M. [10%]: Time Optimal Control of Fuzzy Systems: a Parametric Programming Approach. In Proceedings of the 28th IASTED Conference on Modelling, Identification and Control, pp. 640-805.pdf, 2009. ISBN 978-0-88986-782-6 (**osobne prednesené**)
  18. Herceg, M. [20%] – Mikleš, J. [20%] – Fikar, M. [20%] – **Kvasnica, M.** [20%] – Čirka, L. [20%]: Real-time 2DoF Control of a Quadruple Tank System with Integral Action. In Proceedings of the 17th World Congress of the International Federation of Automatic Control, Seoul, Korea, pp. 8666–8671, 2008. ISBN 978-3-902661-00-5
  19. **Kvasnica, M.** [30%] – Christophersen, F. J. [30%] – Herceg, M. [20%] – Fikar, M. [20%]: Polynomial Approximation of Closed-form MPC for Piecewise Affine Systems. In Proceedings of the 17th World Congress of the International Federation of Automatic Control, Seoul, Korea, pp. 3877–3882, 2008. ISBN 978-3-902661-00-5 (**osobne prednesené**)
  20. Čirka, L. [30%] – Fikar, M. [30%] – **Kvasnica, M.** [20%] – Herceg, M. [20%]: Experimental Identification – an Interactive Online Course. In Proceedings of the 17th World Congress of the International Federation of Automatic Control, Seoul, Korea, pp. 9812–9816, 2008. ISBN 978-3-902661-00-5 (**poster**)
  21. Rauová, I. [25%] – **Kvasnica, M.** [25%] – Čirka, L. [25%] – Fikar, M. [25%]: Real-Time Model Predictive Control of a Laboratory Liquid Tanks System. In Proceedings of the 16th Annual Conference Technical Computing Prague 2008, Kongresové centrum ČVUT Praha, pp. 89–95, 2008. ISBN 978-80-7080-692-0
  22. Herceg, M. [34%] – **Kvasnica, M.** [33%] – Fikar, M. [33%]: Stabilization of an Inverted Pendulum via Fuzzy Explicit Predictive Control. In Proceedings of the 8th International Scientific - Technical Conference Process Control 2008, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. C021\_b-1–C021\_b-5, 2008. ISBN 978-80-7395-077-4 (**poster**)
  23. Mariethoz, S. [34%] – Herceg, M. [33%] – **Kvasnica, M.** [33%]: Model Predictive Control of buck DC-DC converter with nonlinear inductor. In Proceedings of the Eleventh IEEE Workshop on Control and Modeling for Power Electronics, Zurich, Switzerland, pp. 1–8, 2008. ISBN 978-1-4244-2551-8
  24. **Kvasnica, M.** [25%] – Herceg, M. [25%] – Čirka, L. [25%] – Fikar, M. [25%]: Model Predictive Control of a CSTR: a Hybrid Modelling Approach. In Proceedings of the 8th International Scientific - Technical Conference Process Control 2008, University of Pardubice, Kouty nad Desnou, Czech Republic, pp. C021\_a-1–C021\_a-9, 2008. ISBN 978-80-7395-077-4 (**osobne prednesené**)
  25. Čižniar, M. [25%] – Fikar, M. [25%] – **Kvasnica, M.** [25%] – Latifi, M. A. [25%]: Design of Globally Optimal Nonlinear Model Predictive Control. Editor(s): L. Magni, D. Raimondo, F. Allgoewer, In International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control, Pavia, Italy, pp. PV3-1–PV3-8, 2008 (**poster**)
  26. Herceg, M. [34%] – **Kvasnica, M.** [33%] – Fikar, M. [33%]: Parametric Approach to Nonlinear Model Predictive Control. Editor(s): L. Magni, D. Raimondo, F. Allgoewer, In International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control, Pavia, Italy, pp. P11-1–P11-8, 2008 (**poster**)
  27. **Kvasnica, M.** [25%] – Herceg, M. [25%] – Čirka, L. [25%] – Fikar, M. [25%]: Adaptive Model Predictive Control of Piecewise Affine Systems. Editor(s): L. Magni, D. Raimondo, F. Allgoewer, In International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control, Pavia, Italy, pp. PIV3-1–PIV3-8, 2008 (**poster**)
  28. Herceg, M. [50%] – **Kvasnica, M.** [30%] – Fikar, M. [20%]: Transformation of Fuzzy Takagi-Sugeno Models into Piecewise Affine Models. Editor(s): M. Kryszkiewicz, J. F. Peters, H. Rybinski, A. Skowron, In Proceedings of the International Conference on Rough Sets and Intelligent Systems Paradigms, Springer, Warsaw, Poland, vol. LNAI 4585, pp. 211–220, 2007. ISBN 978-3-540-73450-5

29. **Kvasnica, M.** [60%] – Čirka, Ľ. [40%]: Unit Testing Framework for MATLAB. In Proceedings of the 15th Annual Conference Technical Computing Prague 2007, Kongresové centrum ČVUT Praha, pp. kvasnica\_cirka.pdf (súbor na CD-ROM) 2007. ISBN 978-80-7080-658-6 (**osobne prednesené**)
30. Christophersen, F. J. [25%] – **Kvasnica, M.** [25%] – Jones, C. N. [25%] – Morari, M. [25%]: Efficient Evaluation of Piecewise Control Laws defined over a Large Number of Polyhedra. Editor(s): S. G. Tzafestas, P. J. Antsaklis, In Proceedings of the European Control Conference ECC '07, pp. 2360–2367, 2007. ISBN 978-960-89028-5-5
31. Sartori, V. [25%] – Zanderigo, E. [25%] – **Kvasnica, M.** [25%] – Morari, M. [25%]: Optimal Infusion of intravenous morphine and ketamine - A Mixed-Integer Linear Programming application. In IEEE Engineering in Medicine and Biology Society, Shanghai, China, pp. 1–4, 2005.
32. Grieder, P. [25%] – **Kvasnica, M.** [25%] – Baotic, M. [25%] – Morari, M. [25%]: Low Complexity Control of Piecewise Affine Systems with Stability Guarantee. In American Control Conference, Boston, MA, USA, pp. 1–6, 2004. ISBN 0-7803-8335-4
33. Suard, R. [20%] – Löfberg, J. [20%] – Grieder, P. [20%] – **Kvasnica, M.** [20%] – Morari, M. [20%]: Efficient Computation of Controller Partitions in Multi-Parametric Programming. In IEEE Conference on Decision and Control, Bahamas, pp. 3643–3648, 2004. ISBN 0-7803-8682-5
34. Rakovic, S. [20%] – Grieder, P. [20%] – **Kvasnica, M.** [20%] – Mayne, D. [20%] – Morari, M. [20%]: Computation of Invariant Sets for Piecewise Affine Discrete Time Systems subject to Bounded Disturbances. In IEEE Conference on Decision and Control, Bahamas, pp. 1418–1423, 2004. ISBN 0-7803-8682-5
35. **Kvasnica, M.** [25%] – Grieder, P. [25%] – Baotic, M. [25%] – Morari, M. [25%]: Multi-Parametric Toolbox (MPT). In HSCC (Hybrid Systems: Computation and Control ), Philadelphia, PA, USA, no. 2993, pp. 448–462, 2004. ISBN 3-540-21259-0 (**osobne prednesené**)

#### AFD – Publikované príspevky na domácich vedeckých konferenciách (11)

36. Rauová, I. [30%] – **Kvasnica, M.** [30%] – Čirka, Ľ. [20%] – Fikar, M. [20%]: Real-Time Model Predictive Control of a Laboratory Liquid Tanks System. Editor(s): Fikar, M., Kvasnica, M., In Proceedings of the 17th International Conference on Process Control '09, Slovak University of Technology in Bratislava, Štrbské Pleso, Slovakia, pp. 304–308, 2009. ISBN 978-80-227-3081-5
37. Herceg, M. [40%] – **Kvasnica, M.** [20%] – Fikar, M. [20%] – Čirka, Ľ. [20%]: Real-Time Control of a Thermo-Optical Device Using Polynomial Approximation of MPC Scheme. Editor(s): Fikar, M., Kvasnica, M., In Proceedings of the 17th International Conference on Process Control '09, Slovak University of Technology in Bratislava, Štrbské Pleso, Slovakia, pp. 332–340, 2009. ISBN 978-80-227-3081-5
38. Čirka, Ľ. [40%] – **Kvasnica, M.** [30%] – Fikar, M. [30%]: WebLab Module for the Moodle Learning Management System. Editor(s): Huba, M., In Proceedings of 9th International Conference Virtual University 2008, E-academia Slovaca, Bratislava, pp. fid000131.pdf, 2008. ISBN 978-80-89316-10-6
39. Herceg, M. [40%] – **Kvasnica, M.** [30%] – Čirka, Ľ. [20%] – Fikar, M. [10%]: Real-time Predictive Control of a Servo Engine. Editor(s): J. Mikleš, M. Fikar, M. Kvasnica, In Proceedings of the 16th International Conference Process Control '07, Slovak University of Technology in Bratislava, pp. 222f.pdf, 2007. ISBN 978-80-227-2677-1
40. Herceg, M. [50%] – **Kvasnica, M.** [40%] – Fikar, M. [10%]: Stabilizing Predictive Control of Fuzzy Systems Described by Takagi-Sugeno Models. Editor(s): J. Mikleš, M. Fikar, M. Kvasnica, In Proceedings of the 16th International Conference Process Control '07, Slovak University of Technology in Bratislava, pp. 223f.pdf, 2007. ISBN 978-80-227-2677-1
41. Čirka, Ľ. [30%] – Fikar, M. [30%] – **Kvasnica, M.** [20%] – Herceg, M. [20%]: New Features in Course on Experimental Identification. Editor(s): Huba, M., In Proceedings of 8th International Conference Virtual University, E-academia Slovaca, Bratislava, pp. 182–187, 2007. ISBN 978-80-89316-09-0
42. **Kvasnica, M.** [50%] – Čirka, Ľ. [50%]: MATLAB Unit Testing Framework. Editor(s): J. Mikleš, M. Fikar, M. Kvasnica, In Proceedings of the 16th International Conference Process Control '07, Slovak University of Technology in Bratislava, pp. 004f.pdf, 2007. ISBN 978-80-227-2677-1 (**osobne prednesené**)
43. **Kvasnica, M.** [50%] – Čirka, Ľ. [50%]: Usage of miLab in education of Automatic control. Editor(s): J. Mikleš, M. Fikar, J. Dvoran, In Proceedings of the 13th International Conference Process Control '01, Slovak University of Technology Bratislava, Slovak, Štrbské Pleso, High Tatras (Slovakia), 2001. Publikované na CD-ROM. ISBN 80-227-1542-5 (**osobne prednesené**)
44. **Kvasnica, M.** [34%] – Fikar, M. [33%] – Mikleš, J. [33%]: Robust control of a CSTR via static output feedback: An LMI approach. Editor(s): J. Mikleš, M. Fikar, J. Dvoran, In Proceedings of the 13th International Conference Process Control '01, Slovak University of Technology Bratislava, Slovak, Štrbské Pleso, High Tatras (Slovakia), 2001. Publikované na CD-ROM. ISBN 80-227-1542-5

45. **Kvasnica, M.** [50%] – Fikar, M. [50%]: Solving LMI problems using LMI Control toolbox. Editor(s): J. Mikleš, M. Fikar, J. Dvoran, In Proceedings of the 13th International Conference Process Control '01, Slovak University of Technology Bratislava, Slovak, Štrbské Pleso, High Tatras (Slovakia), 2001. Publikované na CD-ROM. ISBN 80-227-1542-5
46. Mikleš, J. [50%] – Čirka, Ľ. [25%] – **Kvasnica, M.** [25%]: Design of a controller by static output feedback. In Proceedings of 1st International Carpathian Control Conference, High Tatras - Podbanské, Slovak Republic, pp. 459–462, 2000.

#### AFG – Abstrakty príspevkov zo zahraničných konferencií (2)

47. **Kvasnica, M.** [40%] – Szűcs, A. [40%] – Fikar, M. [20%]: Optimization-Based Automatic Derivation of Hybrid Approximations. In VOCAL 2010, Program and Abstracts, pp. 55–55, 2010.
48. **Kvasnica, M.** [97%] – Grieder, P. [1%] – Baotic, M. [1%] – Morari, M. [1%]: Multi-Parametric Toolbox 2.6.2. In Proceedings of the 10th International Conference on Hybrid Systems: Computation and control, Pisa, Italy, 2007. Publikované na CD-ROM. ISBN 978-3-540-71492-7 (**poster**)

#### Akceptovaná publikácia vo svet. jazyku na konferencii (6)

49. **Kvasnica, M.** [50%] – Ruová, I. [30%] – Fikar, M. [20%]: Simplification of explicit MPC feedback laws via separation functions. IFAC World Congress, Milano, Italy, August 2011, akceptované.
50. **Kvasnica, M.** [50%] – Szűcs, A. [30%] – Fikar, M. [20%]: Automatic derivation of optimal piecewise affine approximations of nonlinear systems. IFAC World Congress, Milano, Italy, August 2011, akceptované.
51. Rauová, I. [50%] – **Kvasnica, M.** [30%] – Fikar, M. [20%]: Separating Functions for Complexity Reduction of Explicit Model Predictive Control. Process Control 2011 Conference, Tatranská Lomnica, Slovakia, Jún 2011, akceptované.
52. Szűcs, A. [60%] – **Kvasnica, M.** [20%] – Fikar, M. [20%]: MATLAB Toolbox for Automatic Approximation of Nonlinear Functions. Process Control 2011 Conference, Tatranská Lomnica, Slovakia, Jún 2011, akceptované.
53. Paulovič, M. [40%] – **Kvasnica, M.** [40%] – Fikar, M. [20%]: Safety Verification of Rule-Based Controllers. Process Control 2011 Conference, Tatranská Lomnica, Slovakia, Jún 2011, akceptované.
54. Rauová, I. [30%] – Valo, R. [30%] – **Kvasnica, M.** [20%] – Fikar, M. [20%]: Real-Time Model Predictive Control of a Fan Heater via PLC. Process Control 2011 Conference, Tatranská Lomnica, Slovakia, Jún 2011, akceptované.

#### Získané finančné prostriedky

VEGA 1/0095/11 (M. Kvasnica ako zodpovedný riešiteľ), na rok 2011 pridelených 13 554 EUR

#### Riešenie projektov

Zodpovedný riešiteľ:

1. VEGA 1/0095/11: Prediktívne riadenie na platformách s obmedzeným výpočtovým výkonom, 2011-2014

Riešiteľ výskumných úloh:

1. APVV LPP-0092-07: Prediktívne riadenie hybridných systémov, 2008-2011 (M. Fikar)
2. APVV VV-0029-07: Algoritmy pre optimálne riadenie procesov prestupu tepla a látky s hybridnou dynamikou, 2008-2011 (M. Fikar)
3. VEGA 1/0537/10: Riadenie chemických a biochemických procesov s neurčitostami, 2010-2011 (M. Bakošová)
4. VEGA 1/0071/09: Pokročilé metódy optimálneho riadenia chemických a biochemických procesov, 2009-2011 (M. Fikar)

5. KEGA 3/7245/09: Budovanie virtuálnych a vzdialených experimentov pre sieť on-line laboratórií, 2009-2011 (M. Bakošová)
6. NIL-I-007-d: Podpora NO-SK spolupráce v automatickom riadení, 2010-2011 (M. Fikar)
7. HYCON: Hybrid Control: Taming Heterogenity and Complexity of Networked Embedded Systems, 2004-2008 (M. Morari, ETH Zurich), projekt EÚ FP6

## Ocenenia

“Najlepší mladý vedecko-výskumný pracovník Fakulty chemickej a potravinárskej technológie Slovenskej Technickej Univerzity v Bratislave za rok 2008”

([http://www.kirp.chtf.stuba.sk/~kvasnica/files/best\\_researcher\\_2008.pdf](http://www.kirp.chtf.stuba.sk/~kvasnica/files/best_researcher_2008.pdf))

“Najlepšia prednáška v sekcii na American Control Conference 2010, Baltimore, USA”

([http://www.kirp.chtf.stuba.sk/~kvasnica/files/acc\\_2010\\_award\\_kvasnica.pdf](http://www.kirp.chtf.stuba.sk/~kvasnica/files/acc_2010_award_kvasnica.pdf))

## Iné vedecké aktivity

- Usporiadateľ workshopu o softvérových nástrojoch pre prediktívne riadenie na Swedish Control Conference, Lund, 2010
- Usporiadateľ workshopu o explicitnom prediktívnom riadení na konferencii Process Control 2009, Štrbské Pleso, 2009
- Usporiadateľ workshopu o prediktívnom riadení a konvexnej optimalizácii na konferencii Process Control 2007, Štrbské Pleso
- Člen národného organizačného výboru konferencie Process Control 2007, Štrbské Pleso
- Predseda národného organizačného výboru konferencií Process Control 2009 a 2011
- Vedenie sekcií medzinárodných konferencií pod záštitou IEEE
- Recenzent pre časopisy Automatica, IEEE Transactions on Automatic Control, IEEE Transactions on Control Systems Technology, Control Engineering Practice

V Bratislave, 29.4.2011

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Ing. Michal Kvasnica, PhD.

.....  
prof. Ing. Miroslav Fikar, DrSc.  
riaditeľ ÚIAM



## **Prehľad citácií vedeckých prác**



## Prehľad citácií vedeckých prác

### Citácie (145 SCI, 6 knižných, 154 iných)

#### SCI citácie (145)

**Citovaná publikácia Kvasnica, M. – Grieder, P. – Baotic, M. – Morari, M.: Multi-Parametric Toolbox (MPT). In HSCC (Hybrid Systems: Computation and Control), Philadelphia, PA, USA, no. 2993, pp. 448–462, 2004.**

1. Alessandri A, Baglietto M, Battistelli G: Receding-horizon estimation for switching discrete-time linear systems, IEEE TRANSACTIONS ON AUTOMATIC CONTROL 50 (11): 1736-1748 NOV 2005
2. Niederberger D: Design of optimal autonomous switching circuits to suppress mechanical vibration, LECTURE NOTES IN COMPUTER SCIENCE 3414: 511-525 2005
3. Rakovic SV, Kerrigan EC, Kouramas KI, et al.: Invariant approximations of the minimal robust. positively invariant set, IEEE TRANSACTIONS ON AUTOMATIC CONTROL 50 (3): 406-410 MAR 2005
4. Levine, W.: Handbook of Networked and Embedded Control Systems, Springer, ISBN 0817632395
5. Geyer T, Papafotiou G: Direct torque control for induction motor drives: A model predictive control approach based on feasibility, LECTURE NOTES IN COMPUTER SCIENCE 3414: 274-290 2005
6. Olaru S, Dumur D.: Avoiding constraints redundancy in predictive control optimization routines, IEEE TRANSACTIONS ON AUTOMATIC CONTROL 50 (9): 1459-1465 SEP 2005
7. Rakovic, S.V., Kerrigan, E.C., Mayne, D.Q., Lygeros, J.: Reachability analysis of discrete-time systems with disturbances, IEEE Transactions on Automatic Control, Volume: 51, Issue: 4, Pages: 546- 561
8. Azuma, S., Imura, J.: Synthesis of optimal controllers for piecewise affine systems with sampled-data switching, Automatica, Volume 42, Issue 5, May 2006, Pages 697-710
9. Carloni, L., Passerone, R., Pinto, A.: Languages And Tools for Hybrid Systems Design, Journal on Foundations and Trends in Electronic Design Automation, Volume 1, Issue 1/2, June 2006
10. Ferrari-Trecate, G., Gati, M.: Observability analysis and state observers for automotive powertrains with backlash: a hybrid system approach, International Journal of Control, Volume 79, Number 05 / May 2006, 496 – 507
11. Plumbly MD: Recovery of sparse representations by polytope faces pursuit, LECTURE NOTES IN COMPUTER SCIENCE 3889: 206-213 2006
12. Spjotvold J, Kerrigan EC, Jones CN, et al.: On the facet-to-facet property of solutions to convex parametric quadratic programs, AUTOMATICA 42 (12): 2209-2214 DEC 2006
13. Lazar M, Heemels WPMH, Weiland S, Bemporad, A.: Stabilizing model predictive control of hybrid systems, IEEE TRANSACTIONS ON AUTOMATIC CONTROL 51 (11): 1813-1818 NOV 2006
14. Giua A, Mahulea C, Recalde L, et al.: Optimal control of timed continuous Petri nets via explicit MPC, LECTURE NOTES IN CONTROL AND INFORMATION SCIENCES 341: 383-390 2006
15. Jones CN, Maciejowski JM: Primal-dual enumeration for multiparametric linear programming, LECTURE NOTES IN COMPUTER SCIENCE 4151: 248-259 2006
16. Van Der Heijden AC, Serrarens AFA, Camlibel MK, et al.: Hybrid optimal control of dry clutch engagement, INTERNATIONAL JOURNAL OF CONTROL Volume: 80 Issue: 11 Pages: 1717-1728 Published: 2007
17. Kurzhanskiy AA, Varaiya P: Ellipsoidal techniques for reachability analysis of discrete-time linear systems IEEE TRANSACTIONS ON AUTOMATIC CONTROL 52 (1): 26-38 JAN 2007
18. Asarin E, Dang T, Girard A: Hybridization methods for the analysis of nonlinear systems ACTA INFORMATICA 43 (7): 451-476 FEB 2007
19. Girard A, Pappas GJ: Approximate bisimulation relations for constrained linear systems AUTOMATICA 43 (8): 1307-1317 AUG 2007
20. Alessandri, A., Sacone, S., Siri, S., Modelling and optimal receding-horizon control of maritime container terminals, Journal of Mathematical Modelling and Algorithms 6 (1), pp. 109-133, 2007
21. Chan KH, Bao J: Model predictive control of Hammerstein systems with multivariable nonlinearities INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH 46 (1): 168-180 JAN 3 2007
22. Azuma S, Imura JI: Polynomial-time probabilistic observability analysis of sampled-data piecewise affine systems SYSTEMS & CONTROL LETTERS 56 (11-12): 685-694 NOV-DEC 2007
23. Van Der Heijden AC, Serrarens AFA, Camlibel MK, et al.: Hybrid optimal control of dry clutch engagement INTERNATIONAL JOURNAL OF CONTROL 80 (11): 1717-1728 2007
24. Rakovic SV, Kerrigan EC, Mayne DQ, et al.: Optimized robust control invariance for linear discrete-time systems: Theoretical foundations AUTOMATICA 43 (5): 831-841 MAY 2007
25. Holena M: McNaughton theorem of fuzzy logic from a data-mining point of view NEURAL NETWORK WORLD 17 (3): 189-212 2007
26. Plumbly MD: On polar polytopes and the recovery of sparse representations IEEE TRANSACTIONS ON INFORMATION THEORY 53 (9): 3188-3195 SEP 2007
27. Lima, F., Georgakis, Ch.: Design of output constraints for model-based non-square controllers using interval operability, Journal of Process Control,
28. Shun-ichi Azuma and Jun-ichi Imura: Polynomial-time probabilistic observability analysis of sampled-data piecewise affine systems, Systems & Control Letters, Volume 56, Issues 11-12, November-December 2007, Pages 685-694
29. : Feedback and invariance under uncertainty via set-iterates, Automatica, In Press, Corrected Proof, Available online 26 November 2007
30. Jones CN, Kerrigan EC, Maciejowski JM: Lexicographic perturbation for multiparametric linear programming with applications to control AUTOMATICA 43 (10): 1808-1816 OCT 2007
31. Wan, J., Vehi, J., Leo, N.: A numerical approach to design control invariant sets for constrained nonlinear discrete-time systems with guaranteed optimality, Journal of Global Optimization, Aug 2008

32. Azuma SI, Yanagisawa E, Imura JI: Controllability analysis of biosystems based on piecewise-affine systems approach , IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS I-REGULAR PAPERS Special Issue: Sp. Iss. SI Pages: 139-152 Published: JAN 2008
33. Sui D, Feng L, Ong CJ: Interpolated robust time-optimal controllers for linear systems, IET CONTROL THEORY AND APPLICATIONS Volume: 2 Issue: 3 Pages: 219-227 Published: MAR 2008
34. Wan J, Vehi J, Luo NS, Nonlinear Contractive Model Predictive Control via Polytopic Robust Controllable Sets, JOURNAL OF CONVEX ANALYSIS Volume: 15 Issue: 4 Pages: 905-917 Published: 2008
35. Gondhalekar R, Imura J: Exact Cost Performance Analysis of Piecewise Affine Systems, IEICE TRANSACTIONS ON FUNDAMENTALS OF ELECTRONICS COMMUNICATIONS AND COMPUTER SCIENCES Volume: E91A Issue: 11 Pages: 3253-3260 Published: NOV 2008
36. Batt G, Belta C, Weiss R: Temporal logic analysis of gene networks under parameter uncertainty, IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS I-REGULAR PAPERS Special Issue: Sp. Iss. SI Pages: 215-229 Published: JAN 2008
37. Lima FV, Georgakis C: Design of output constraints for model-based non-square controllers using interval operability , JOURNAL OF PROCESS CONTROL Volume: 18 Issue: 6 Pages: 610-620 Published: JUL 2008
38. Oishi M, Mitchell I, Bayen AM, et al.: Invariance-preserving abstractions of hybrid systems: Application to user interface design, IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY Volume: 16 Issue: 2 Pages: 229-244 Published: MAR 2008
39. Holena M, Cukic T, Rodemerck U, et al.: Optimization of catalysts using specific, description-based genetic algorithms , JOURNAL OF CHEMICAL INFORMATION AND MODELING Volume: 48 Issue: 2 Pages: 274-282 Published: FEB 2008
40. Corona D, De Schutter B: Adaptive cruise control for a SMART car: A comparison benchmark for MPC-PWA control methods , IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY Volume: 16 Issue: 2 Pages: 365-372 Published: MAR 2008
41. Heemels WPMH, Sandee JH, Van den Bosch PPJ: Analysis of event-driven controllers for linear systems, INTERNATIONAL JOURNAL OF CONTROL Volume: 81 Issue: 4 Pages: 571-590 Published: APR 2008
42. Necoara I, De Schutter B, Van Den Boom T, et al.: Model predictive control for uncertain max-min-plus-scaling systems , INTERNATIONAL JOURNAL OF CONTROL Volume: 81 Issue: 5 Pages: 701-713 Published: MAY 2008
43. Batt G, Belta C, Weiss R: Temporal logic analysis of gene networks under parameter uncertainty , IEEE TRANSACTIONS ON AUTOMATIC CONTROL Special Issue: Sp. Iss. SI Pages: 215-229 Published: JAN 2008
44. Lersbamrungsuk V, Srinophakun T, Narasimhan S, et al.: Control structure design for optimal operation of heat exchanger networks , AIChE JOURNAL Volume: 54 Issue: 1 Pages: 150-162 Published: JAN 2008
45. Christian Løvaas, María M. Seron, Graham C. Goodwin: Robust output-feedback model predictive control for systems with unstructured uncertainty, Automatica, Volume 44, Issue 8, August 2008, Pages 1933-1943
46. Avni O, Borrelli F, Katzir G, et al.: Scanning and tracking with independent cameras - a biologically motivated approach based on model predictive control , AUTONOMOUS ROBOTS Volume: 24 Issue: 3 Pages: 285-302 Published: APR 2008
47. McInroy JE, Qi Z: A novel pose estimation algorithm based on points to regions correspondence , JOURNAL OF MATHEMATICAL IMAGING AND VISION Volume: 30 Issue: 2 Pages: 195-207 Published: FEB 2008
48. Sui D, Ong CJ: Constrained piecewise linear systems with disturbances: Controller design via convex invariant sets , INTERNATIONAL JOURNAL OF ROBUST AND NONLINEAR CONTROL Volume: 18 Issue: 13 Pages: 1327-1347 Published: SEP 10 2008
49. Malik WA, Darbha S, Bhattacharyya SP: A linear programming approach to the synthesis of fixed-structure controllers, IEEE TRANSACTIONS ON AUTOMATIC CONTROL Volume: 53 Issue: 6 Pages: 1341-1352 Published: JUL 2008
50. S. Garcia-Nieto, M. Martínez, X. Blasco, J. Sanchis: Nonlinear predictive control based on local model networks for air management in diesel engines, Control Engineering Practice, Volume 16, Issue 12, December 2008, Pages 1399-1413
51. Jingjing Du, Chunyue Song, Ping Li: Application of gap metric to model bank determination in multilinear model approach, Journal of Process Control, In Press, Corrected Proof, Available online 24 June 2008
52. Harrison, C., Qin, S.: Minimum variance performance map for constrained model predictive control, JOURNAL OF PROCESS CONTROL Volume: 19 Issue: 7 Pages: 1199-1204 Published: JUL 2009
53. Wan, J., Wang, X., Ma, C.: Particle Shape Manipulation and Optimization in Cooling Crystallization Involving Multiple Crystal Morphological Forms, AIChE JOURNAL Volume: 55 Issue: 8 Pages: 2049-2061 Published: AUG 2009
54. Zhang, J., Hao, P., Wang, W.-L.: Multi-parametric-programming-based feasible region-expansion algorithm for synthesis of explicit model predictive control system, Kongzhi Lilun Yu Yinyong/Control Theory and Applications 26 (3), pp. 305-308
55. Sung C, Maravelias CT: A Projection-Based Method for Production Planning of Multiproduct Facilities, AIChE JOURNAL Volume: 55 Issue: 10 Pages: 2614-2630 Published: OCT 2009
56. Alessio A, Bemporad A: A Survey on Explicit Model Predictive Control, NONLINEAR MODEL PREDICTIVE CONTROL: TOWARDS NEW CHALLENGING APPLICATIONS Book Series: Lecture Notes in Control and Information Sciences Volume: 384 Pages: 345-369 Published: 2009
57. Matcovschi, M., Pastravanu, O.: Invariance Properties of Recurrent Neural Networks. INTELLIGENT SYSTEMS AND TECHNOLOGIES: METHODS AND APPLICATIONS Book Series: Studies in Computational Intelligence Volume: 217 Pages: 105-119 Published: 2009
58. Konishi Y, Araki N, Tadokoro K, et al.: POSITIONING CONTROL OF A 2-MASS-SPRING SYSTEM WITH STATIC AND KINETIC FRICTION USING HYBRID CONTROLLER, INTERNATIONAL JOURNAL OF INNOVATIVE COMPUTING INFORMATION AND CONTROL Volume: 5 Issue: 10B Special Issue: Sp. Iss. SI Pages: 3341-3349 Published: OCT 2009
59. Borrelli F, Falcone P, Pekar J, et al.: Reference governor for constrained piecewise affine systems, JOURNAL OF PROCESS CONTROL Volume: 19 Issue: 8 Special Issue: Sp. Iss. SI Pages: 1229-1237 Published: SEP 2009
60. Kang K, Bitmead RR: Model Predictive Control with Control Lyapunov Function Support , NONLINEAR MODEL PREDICTIVE CONTROL: TOWARDS NEW CHALLENGING APPLICATIONS. Lecture Notes in Control and Information Sciences Volume: 384 Pages: 79-87 Published: 2009
61. Hatanaka T, Yamada T, Fujita M, et al.: Explicit Receding Horizon Control of Automobiles with Continuously Variable Transmissions, NONLINEAR MODEL PREDICTIVE CONTROL: TOWARDS NEW CHALLENGING APPLICATIONS. Lecture Notes in Control and Information Sciences Volume: 384 Pages: 561-569 Published: 2009
62. Fontes, F.A.C.C., Fontes, D.B.M.M., Caldeira, A.C.D.: Model predictive control of vehicle formations, Lecture Notes in Control and Information Sciences 381, pp. 371-384
63. Zanma T, Asano N, Ishida M: Off-line Model Predictive Control of DCDC Converter and its Experimental Verification , IEEE TRANSACTIONS ON ELECTRICAL AND ELECTRONIC ENGINEERING Volume: 4 Issue: 2 Pages: 269-277 Published: MAR 2009
64. Maia MH, Galvao RKH: On the use of mixed-integer linear programming for predictive control with avoidance constraints, INTERNATIONAL JOURNAL OF ROBUST AND NONLINEAR CONTROL Volume: 19 Issue: 7 Pages: 822-828 Published: MAY 10 2009

65. Wan J, Vehi J, Luo NS, A numerical approach to design control invariant sets for constrained nonlinear discrete-time systems with guaranteed optimality, *JOURNAL OF GLOBAL OPTIMIZATION* Volume: 44 Issue: 3 Pages: 395-407 Published: JUL 2009
66. Bolognani S, Bolognani S, Peretti L, et al., Design and Implementation of Model Predictive Control for Electrical Motor Drives, *IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS* Volume: 56 Issue: 6 Pages: 1925-1936 Published: JUN 2009
67. Chengtao Wen, Xiaoyan Ma, B. Erik Ydstie: Analytical expression of explicit MPC solution via lattice piecewise-affine function, *Automatica*, Volume 45, Issue 4, April 2009, Pages 910-917
68. Du JJ, Song CY, Li P, Multilinear Model Control of Hammerstein-like Systems Based on an Included Angle Dividing Method and the MLD-MPC Strategy, *INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH* Volume: 48 Issue: 8 Pages: 3934-3943 Published: APR 15 2009
69. Vesely V, Rosinova D, ROBUST OUTPUT MODEL PREDICTIVE CONTROL DESIGN: BMI APPROACH, *INTERNATIONAL JOURNAL OF INNOVATIVE COMPUTING INFORMATION AND CONTROL* Volume: 5 Issue: 4 Pages: 1115-1123 Published: APR 2009
70. Canale M, Fagiano L, Milanese M: Set Membership approximation theory for fast implementation of Model Predictive Control laws, Source: *AUTOMATICA* Volume: 45 Issue: 1 Pages: 45-54 Published: JAN 2009
71. Du JJ, Song CY, Li P: Application of gap metric to model bank determination in multilinear model approach, *JOURNAL OF PROCESS CONTROL* Volume: 19 Issue: 2 Pages: 231-240 Published: FEB 2009
72. Sui D, Ong CJ, Feng L, A framework for multiple robust explicit MPC controllers for linear systems, *INTERNATIONAL JOURNAL OF CONTROL* Volume: 82 Issue: 8 Pages: 1414-1422 Published: 2009
73. Cychowski M, Szabat K, Orłowska-Kowalska T, Constrained Model Predictive Control of the Drive System With Mechanical Elasticity, *IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS* Volume: 56 Issue: 6 Pages: 1963-1973 Published: JUN 2009
74. Dou LH, Dong LX, Chen J, et al.: Predictive control for mechanical system with backlash based on hybrid model; *JOURNAL OF SYSTEMS ENGINEERING AND ELECTRONICS* Volume: 20 Issue: 6 Pages: 1301-1308 Published: DEC 2009
75. Borrelli F, Del Vecchio C, Parisio A: Robust invariant sets for constrained storage systems; *AUTOMATICA* Volume: 45 Issue: 12 Pages: 2930-2936 Published: DEC 2009
76. Ayanian N, Kumar V: Decentralized Feedback Controllers for Multiagent Teams in Environments With Obstacles; *IEEE TRANSACTIONS ON ROBOTICS* Volume: 26 Issue: 5 Pages: 878-887 Published: OCT 2010
77. Machina A, Ponosov A, Voit EO: Automated piecewise power-law modeling of biological systems; *JOURNAL OF BIOTECHNOLOGY* Volume: 149 Issue: 3 Special Issue: Sp. Iss. SI Pages: 154-165 Published: SEP 1 2010
78. Lovaas C, Seron MM, Goodwin GC: Robust Output-Feedback MPC With Integral Action; *IEEE TRANSACTIONS ON AUTOMATIC CONTROL* Volume: 55 Issue: 7 Pages: 1531-1543 Published: JUL 2010
79. Rakovic SV, Baric M: Parameterized Robust Control Invariant Sets for Linear Systems: Theoretical Advances and Computational Remarks; *IEEE TRANSACTIONS ON AUTOMATIC CONTROL* Volume: 55 Issue: 7 Pages: 1599-1614 Published: JUL 2010
80. Patrinos P, Sarimveis H: A new algorithm for solving convex parametric quadratic programs based on graphical derivatives of solution mappings; *AUTOMATICA* Volume: 46 Issue: 9 Pages: 1405-1418 Published: SEP 2010
81. Naus GJL, Ploeg J, Van de Molengraft MJG, et al.: Design and implementation of parameterized adaptive cruise control: An explicit model predictive control approach; *CONTROL ENGINEERING PRACTICE* Volume: 18 Issue: 8 Pages: 882-892 Published: AUG 2010
82. Pregelj B, Gerskic S: Hybrid explicit model predictive control of a nonlinear process approximated with a piecewise affine model; *JOURNAL OF PROCESS CONTROL* Volume: 20 Issue: 7 Pages: 832-839 Published: AUG 2010
83. Lima FV, Georgakis C: Input-output operability of control systems: The steady-state case; *JOURNAL OF PROCESS CONTROL* Volume: 20 Issue: 6 Pages: 769-776 Published: JUL 2010
84. Sui D, Feng L, Ong CJ, et al.: Robust explicit model predictive control for linear systems via interpolation techniques; *INTERNATIONAL JOURNAL OF ROBUST AND NONLINEAR CONTROL* Volume: 20 Issue: 10 Pages: 1166-1175 Published: JUL 10 2010
85. Moser C, Chen JJ, Thiele L: An Energy Management Framework for Energy Harvesting Embedded Systems; *ACM JOURNAL ON EMERGING TECHNOLOGIES IN COMPUTING SYSTEMS* Volume: 6 Issue: 2 Article Number: 7 Published: JUN 2010
86. Solberg B, Andersen P, Maciejowski JM, et al.: Optimal switching control of burner setting for a compact marine boiler design; *CONTROL ENGINEERING PRACTICE* Volume: 18 Issue: 6 Pages: 665-675 Published: JUN 2010
87. Paschedag T, Giua A, Seatzu C: Constrained optimal control: an application to semiactive suspension systems; *INTERNATIONAL JOURNAL OF SYSTEMS SCIENCE* Volume: 41 Issue: 7 Pages: 797-811 Published: 2010
88. Ulbig A, Olaru S, Dumur D, et al.: EXPLICIT NONLINEAR PREDICTIVE CONTROL FOR A MAGNETIC LEVITATION SYSTEM; *ASIAN JOURNAL OF CONTROL* Volume: 12 Issue: 3 Special Issue: Sp. Iss. SI Pages: 434-442 Published: MAY 2010
89. Gonzalez R, Fiacchini M, Alamo T, et al.: Adaptive Control for a Mobile Robot Under Slip Conditions Using an LMI-Based Approach; *EUROPEAN JOURNAL OF CONTROL* Volume: 16 Issue: 2 Pages: 144-155 Published: MAR-APR 2010
90. Ghaffari-Hadigheh A, Romanko O, Terlaky T: Bi-parametric convex quadratic optimization; *OPTIMIZATION METHODS & SOFTWARE* Volume: 25 Issue: 2 Pages: 229-245 Published: 2010
91. Lima FV, Georgakis C, Smith JF, et al.: Operability-Based Determination of Feasible Control Constraints for Several High-Dimensional Nonsquare Industrial Processes; *AIChE JOURNAL* Volume: 56 Issue: 5 Pages: 1249-1261 Published: MAY 2010
92. Chen F, Qi DL: Robust Low Complexity Predictive Control of Constrained Piecewise Affine Systems with Bounded Disturbances; *INTERNATIONAL JOURNAL OF CONTROL AUTOMATION AND SYSTEMS* Volume: 8 Issue: 2 Pages: 439-444 Published: APR 2010
93. de Almeida FA, Leissing D: Fault-Tolerant Model Predictive Control with Flight-Test Results; *JOURNAL OF GUIDANCE CONTROL AND DYNAMICS* Volume: 33 Issue: 2 Pages: 363-375 Published: MAR-APR 2010
94. Lima FV, Jia Z, Lerapetritou M, et al.: Similarities and Differences Between the Concepts of Operability and Flexibility: The Steady-State Case; *AIChE JOURNAL* Volume: 56 Issue: 3 Pages: 702-716 Published: MAR 2010
95. Moser C, Thiele L, Brunelli D, et al.: Adaptive Power Management for Environmentally Powered Systems; *IEEE TRANSACTIONS ON COMPUTERS* Volume: 59 Issue: 4 Pages: 478-491 Published: APR 2010
96. Szabat K, Serkies PJ: Control of the drive system with elastic joint using Model Predictive Control; *PRZEGLAD ELEKTROTECHNICZNY* Volume: 86 Issue: 2 Pages: 380-383 Published: 2010
97. Cychowski MT, Szabat K: Efficient real-time model predictive control of the drive system with elastic transmission; *IET CONTROL THEORY AND APPLICATIONS* Volume: 4 Issue: 1 Pages: 37-49 Published: JAN 2010
98. Paoletti S, Roll J, Garulli A, et al.: On the Input-Output Representation of Piecewise Affine State Space Models; *IEEE TRANSACTIONS ON AUTOMATIC CONTROL* Volume: 55 Issue: 1 Pages: 60-73 Published: JAN 2010
99. Keshavarz, M., Barkhordari Yazdi, M., Jahed-Motlagh, M.R.: Piecewise affine modeling and control of a boiler-turbine unit; *Applied Thermal Engineering* 30 (8-9), pp. 781-791

100. Sui, D., Feng, L., Hovd, M.: Robust output feedback time optimal decomposed controllers for linear systems via moving horizon estimation; *Nonlinear Analysis: Hybrid Systems* 4 (2), pp. 334-344
101. Jian Huang ; Pei Di ; Fukuda, T. ; Matsuno, T.: Robust Model-Based Online Fault Detection for Mating Process of Electric Connectors in Robotic Wiring Harness Assembly Systems; *Control Systems Technology, IEEE Transactions on*, Volume : 18 , Issue:5, On page(s): 1207 - 1215, Sept. 2010
102. Shen T, Wang XH, Yuan ZG: Stability analysis for a class of digital filters with single saturation nonlinearity, *AUTOMATICA* Volume: 46 Issue: 12 Pages: 2112-2115 Published: DEC 2010
103. Yordanov B, Belta C: Formal Analysis of Discrete-Time Piecewise Affine Systems, *IEEE TRANSACTIONS ON AUTOMATIC CONTROL* Volume: 55 Issue: 12 Pages: 2834-2840 Published: DEC 2010
104. Ocampo-Martinez C, De Dona JA, Seron MM: Actuator fault-tolerant control based on set separation, *INTERNATIONAL JOURNAL OF ADAPTIVE CONTROL AND SIGNAL PROCESSING* Volume: 24 Issue: 12 Pages: 1070-1090 Published: DEC 2010
105. Greco L, Fontanelli D, Bicchi A: Design and Stability Analysis for Anytime Control via Stochastic Scheduling, *IEEE TRANSACTIONS ON AUTOMATIC CONTROL* Volume: 56 Issue: 3 Pages: 571-585 Published: MAR 2011
106. Falkenhain J, Lunze J: Guaranteed Disturbance-set Estimation of Linear Discrete-time Systems, *AT-AUTOMATISIERUNGSTECHNIK* Volume: 59 Issue: 2 Pages: 104-113 Published: 2011
107. Serkies PJ, Szabat K: Predictive position control of the drive system with elastic joint, *PRZEGLAD ELEKTROTECHNICZNY* Volume: 87 Issue: 2 Pages: 276-279 Published: 2011
108. Kaynama S, Oishi M: Complexity reduction through a Schur-based decomposition for reachability analysis of linear time-invariant systems, *INTERNATIONAL JOURNAL OF CONTROL* Volume: 84 Issue: 1 Pages: 165-179 Published: 2011
109. Kim M, Sundararajan JK, Medard M: Network Coding in a Multicast Switch, *IEEE TRANSACTIONS ON INFORMATION THEORY* Volume: 57 Issue: 1 Pages: 436-460 Published: JAN 2011
110. Artstein Z, Rakovic SV: Set invariance under output feedback: a set-dynamics approach, *INTERNATIONAL JOURNAL OF SYSTEMS SCIENCE* Volume: 42 Issue: 4 Pages: 539-555 Published: 2011
111. Gondhalekar R, Jones CN: MPC of constrained discrete-time linear periodic systems - A framework for asynchronous control: Strong feasibility, stability and optimality via periodic invariance, *AUTOMATICA* Volume: 47 Issue: 2 Pages: 326-333 Published: FEB 2011
112. Scibilia F, Olaru S, Hovd M: On feasible sets for MPC and their approximations, *AUTOMATICA* Volume: 47 Issue: 1 Pages: 133-139 Published: JAN 2011
113. Holena M, Linke D, Rodemerck U: Generator approach to evolutionary optimization of catalysts and its integration with surrogate modeling, *CATALYSIS TODAY* Volume: 159 Issue: 1 Pages: 84-95 Published: JAN 10 2011
114. Paindaveine D, Siman M: On directional multiple-output quantile regression, *JOURNAL OF MULTIVARIATE ANALYSIS* Volume: 102 Issue: 2 Pages: 193-212 Published: FEB 2011

***Citovaná publikácia Grieder, P. – Kvasnica, M. – Baotic, M. – Morari, M.: Stabilizing low complexity feedback control of constrained piecewise affine systems. Automatica, vol. 41, issue 10, pp. 1683–1694, 2005.***

115. Lazar M, Heemels WPMH, Weiland S, Bemporad, A.: Stabilizing model predictive control of hybrid systems, *IEEE TRANSACTIONS ON AUTOMATIC CONTROL* 51 (11): 1813-1818 NOV 2006
116. Zou, Y.-Y., Zou, T., Li, S.-Y.: Predictive control for hybrid systems, *Control and Decision* 22 (4), pp. 361-365+372
117. Sui D, Feng L, Ong CJ: Interpolated robust time-optimal controllers for linear systems, *IET CONTROL THEORY AND APPLICATIONS* Volume: 2 Issue: 3 Pages: 219-227 Published: MAR 2008
118. Liu, Z.-L., Pei, R., Kang, E.-L., Mu, X.-Y.: Model predictive control of time delay switched system with certain switching order constraints, *Jilin Daxue Xuebao (Gongxueban)/Journal of Jilin University (Engineering and Technology Edition)* 38 (2), pp. 454-459
119. Fiacchini M, Alamo T, Alvarado I, et al.: Safety verification and adaptive model predictive control of the hybrid dynamics of a fuel cell system, *INTERNATIONAL JOURNAL OF ADAPTIVE CONTROL AND SIGNAL PROCESSING* Volume: 22 Issue: 2 Pages: 142-160 Published: MAR 2008
120. Gerksic S, Strmcnik S, van den Boom T: Feedback action in predictive control: An experimental case study, *CONTROL ENGINEERING PRACTICE* Volume: 16 Issue: 3 Pages: 321-332 Published: MAR 2008
121. Zhang, J., Xiao, Y., Bi, Z.: Guidance method based on multi-model prediction for re-entry vehicles, *Hangkong Xuebao/Acta Aeronautica et Astronautica Sinica* 29 (SUPPL.), pp. 20-25
122. Long, R., Fu, J., Zhang, L.: Optimal control of switched system based on neural network optimization, *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* 5227 LNAI, pp. 799-806
123. Wu, C., Teo, K.L., Rehbock, V.: Optimal control of piecewise affine systems with piecewise affine state feedback, *Journal of Industrial and Management Optimization* 5 (4), pp. 737-747
124. Lazar, M., Jokic, A.: Synthesis of trajectory-dependent control lyapunov functions by a single linear program, *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* 5469, pp. 237-251
125. Sui D, Feng L, Hovd M: Robust Explicit Moving Horizon Control and Estimation: A Batch Polymerization Case Study, *MODELING IDENTIFICATION AND CONTROL* Volume: 30 Issue: 1 Pages: 17-U27 Published: 2009
126. Guo, J., Yan, G.-F., Liu, M.-Q.: Review on hybrid systems based on generalized time space model, *Zhejiang Daxue Xuebao (Gongxue Ban)/Journal of Zhejiang University (Engineering Science)* 43 (2), pp. 271-275
127. Vasak, M., Peric, N.: Stability Analysis of a Patched LQR Control System for Constrained Multi-Mass Electrical Drives, *PRZEGLAD ELEKTROTECHNICZNY* Volume: 85 Issue: 7 Pages: 109-114 Published: 2009
128. Lazar M, Heemels WPMH, Teel AR: Lyapunov Functions, Stability and Input-to-State Stability Subtleties for Discrete-Time Discontinuous Systems, *IEEE TRANSACTIONS ON AUTOMATIC CONTROL* Volume: 54 Issue: 10 Pages: 2421-2425 Published: OCT 2009
129. Pan, S., Sun, J., Zhao, S.: Robust filtering for discrete time piecewise impulsive systems, *Signal Processing* 90 (1), pp. 324-330
130. Wu, C., Teo, K.L., Rehbock, V.: Optimal control of piecewise affine systems with piecewise affine state feedback; *Journal of Industrial and Management Optimization* 5 (4), pp. 737-747
131. Zhang HB, Yu YB, Zhang JA: Robust H-infinity control of piecewise-linear chaotic systems with random data loss; Source: *CHINESE PHYSICS B* Volume: 19 Issue: 8 Article Number: 080509 Published: AUG 2010
132. Pregelj B, Gerksic S: Hybrid explicit model predictive control of a nonlinear process approximated with a piecewise affine model; *JOURNAL OF PROCESS CONTROL* Volume: 20 Issue: 7 Pages: 832-839 Published: AUG 2010
133. Camacho EF, Ramirez DR, Limon D, et al.: Model predictive control techniques for hybrid systems; *ANNUAL REVIEWS IN CONTROL* Volume: 34 Issue: 1 Pages: 21-31 Published: APR 2010

134. Chen F, Qi DL: Robust Low Complexity Predictive Control of Constrained Piecewise Affine Systems with Bounded Disturbances; INTERNATIONAL JOURNAL OF CONTROL AUTOMATION AND SYSTEMS Volume: 8 Issue: 2 Pages: 439-444 Published: APR 2010
135. Gorges D, Izak M, Liu S: Optimal Control and Scheduling of Switched Systems, IEEE TRANSACTIONS ON AUTOMATIC CONTROL Volume: 56 Issue: 1 Pages: 135-140 Published: JAN 2011

**Citovaná publikácia Rakovic, S. – Grieder, P. – Kvasnica, M. – Mayne, D. – Morari, M.: Computation of Invariant Sets for Piecewise Affine Discrete Time Systems subject to Bounded Disturbances. In IEEE Conference on Decision and Control, Bahamas, pp. 1418–1423, 2004.**

136. Fiacchini M, Alamo T, Alvarado I, et al.: Safety verification and adaptive model predictive control of the hybrid dynamics of a fuel cell system, INTERNATIONAL JOURNAL OF ADAPTIVE CONTROL AND SIGNAL PROCESSING Volume: 22 Issue: 2 Pages: 142-160 Published: MAR 2008
137. Takeshi Hatanaka, Kiyotsugu Takaba: Computations of probabilistic output admissible set for uncertain constrained systems, Automatica, Volume 44, Issue 2, February 2008, Pages 479-487
138. Chen, F., Zhao, G.-Z.: Robust dual-model predictive control for a class of piecewise affine systems, Zhejiang Daxue Xuebao (Gongxue Ban)/Journal of Zhejiang University (Engineering Science) 43 (3), pp. 455-458+510
139. Chen, F., Zhao, G.-Z.: Robust predictive control of constrained piecewise affine systems based on a contractive sequence of sets, Xi Tong Gong Cheng Yu Dian Zi Ji Shu/Systems Engineering and Electronics 31 (5), pp. 1176-1179
140. T. Alamo, A. Cepeda, M. Fiacchini, E.F. Camacho: Convex invariant sets for discrete-time Lur'e systems, Automatica, Volume 45, Issue 4, April 2009, Pages 1066-1071

**Citovaná publikácia Kvasnica, M.: Real-Time Model Predictive Control via Multi-Parametric Programming: Theory and Tools; VDM Verlag, 2009**

141. Hovd M, Orlaru S; Piecewise quadratic Lyapunov functions for stability verification of approximate explicit MPC; MODELING IDENTIFICATION AND CONTROL Volume: 31 Issue: 2 Pages: 45-53 Published: 2010
142. de Almeida FA: Reference Management for Fault-Tolerant Model Predictive Control, JOURNAL OF GUIDANCE CONTROL AND DYNAMICS Volume: 34 Issue: 1 Pages: 44-56 Published: JAN-FEB 2011

**Citovaná publikácia Christophersen, F. J. – Kvasnica, M. – Jones, C. N. – Morari, M.: Efficient Evaluation of Piecewise Control Laws defined over a Large Number of Polyhedra. Editor(s): S. G. Tzafestas, P. J. Antsaklis, In Proceedings of the European Control Conference ECC '07, pp. 2360–2367, 2007.**

143. Chengtao Wen, Xiaoyan Ma, B. Erik Ydstie: Analytical expression of explicit MPC solution via lattice piecewise-affine function, Automatica, Volume 45, Issue 4, April 2009, Pages 910-917

**Citovaná publikácia M. Baotic – M. Kvasnica, CPLEXINT–MATLAB Interface for the CPLEX Solver, Swiss Federal Institute of Technology, Zurich, ETH**

144. Xun-Kai Wei, Ying-Hong Li: Linear programming minimum sphere set covering for extreme learning machines, Neurocomputing, Volume 71, Issues 4-6, January 2008, Pages 570-575

**Citovaná publikácia Herceg, M. – Kvasnica, M. – Fikar, M.: Parametric Approach to Nonlinear Model Predictive Control, In Nonlinear Model Predictive Control, Editor(s): Magni, L. and Raimondo, D. M. and Allgoewer, F., Springer Berlin / Heidelberg, pp. 381–389, 2009**

145. Dominguez LF, Pistikopoulos EN: Recent Advances in Explicit Multiparametric Nonlinear Model Predictive Control, INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH Volume: 50 Issue: 2 Pages: 609-619 Published: JAN 19 2011

### **Knížné citácie (6):**

**Citovaná publikácia Kvasnica, M. – Grieder, P. – Baotic, M. – Morari, M.: Multi-Parametric Toolbox (MPT). In HSCC (Hybrid Systems: Computation and Control), Philadelphia, PA, USA, no. 2993, pp. 448–462, 2004.**

1. Christophersen, F.: Optimal Control of Constrained Piecewise Affine Systems, Springer, ISBN 1852339233
2. Mikleš, J., Fikar, M.: Process Modelling, Identification, and Control, Springer Verlag, Berlin Heidelberg, 2007
3. Lunze, J., Lamnabhi-Lagarrigue, F.: Handbook of Hybrid Systems Control: Theory, Tools, Applications, Cambridge University Press, ISBN 978-0-521-76505-3

**Citovaná publikácia Grieder, P. – Kvasnica, M. – Baotic, M. – Morari, M.: Stabilizing low complexity feedback control of constrained piecewise affine systems. Automatica, vol. 41, issue 10, pp. 1683–1694, 2005.**

4. Mikleš, J., Fikar, M.: Process Modelling, Identification, and Control, Springer Verlag, Berlin Heidelberg, 2007
5. Lunze, J., Lamnabhi-Lagarrigue, F.: Handbook of Hybrid Systems Control: Theory, Tools, Applications, Cambridge University Press, ISBN 978-0-521-76505-3

**Citovaná publikácia Sartori, V. – Zanderigo, E. – Kvasnica, M. – Morari, M.: Optimal Infusion of intravenous morphine and ketamine - A Mixed-Integer Linear Programming application. In IEEE Engineering in Medicine and Biology Society, Shanghai, China, pp. 1–4, 2005.**

6. Mikleš, J., Fikar, M.: Process Modelling, Identification, and Control, Springer Verlag, Berlin Heidelberg, 2007

### **Citácia iná (154):**

**Citovaná publikácia Kvasnica, M. – Grieder, P. – Baotic, M. – Morari, M.: Multi-Parametric Toolbox (MPT). In HSCC (Hybrid Systems: Computation and Control), Philadelphia, PA, USA, no. 2993, pp. 448–462, 2004.**

1. Linder, A., Kennel, R.: Model predictive control for electrical drives, PESC Record - IEEE Annual Power Electronics Specialists Conference 2005, art. no. 1581874, pp. 1793-1799
2. Gati, M., Ferrari-Trecate, G.: Computation of observability regions for piecewise affine systems: A projection-based algorithm, Proceedings of the 44th IEEE Conference on Decision and Control, and the European Control Conference, CDC-ECC '05 2005, art. no. 1583276, pp. 6922-6927
3. Linder, A., Kennel, R.: Direct model predictive control - A new direct predictive control strategy for electrical drives, 2005 European Conference on Power Electronics and Applications 2005, art. no. 1665525
4. Giorgetti, N., Pappas, G.J., Bemporad, A.: Bounded model checking of hybrid dynamical systems, Proceedings of the 44th IEEE Conference on Decision and Control, and the European Control Conference, CDC-ECC '05 2005, art. no. 1582233, pp. 672-677
5. Lygeros, J: An overview of research areas in hybrid control, Proceedings of the 44th IEEE Conference on Decision and Control, and the European Control Conference, CDC-ECC '05 2005, art. no. 1583054, pp. 5600-5605
6. Oлару, S., Dumur, D: Compact explicit MPC with guarantee of feasibility for tracking, Proceedings of the 44th IEEE Conference on Decision and Control, and the European Control Conference, CDC-ECC '05 2005
7. Lazaar, M., Heemels, M., Bemporad, A., Weiland, S.: On the Stability and Robustness of Non-Smooth Nonlinear Model Predictive Control, International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control, 2005
8. Carloni, L., Passerone, R., Pinto, A.: Languages and Tools for Hybrid Systems Design, Now Publishers Inv., 2006, ISBN-10: 193301928X
9. Lazar, M., Heemels, W.: A new dual-mode hybrid MPC algorithm with stability guarantee, Preprints of the 2nd IFAC Conf. on Analysis and Design of Hybrid Systems (Alghero, Italy), 7-9 June 2006
10. Kurzhanskiy, A., Varaiaya, P.: Ellipsoidal Toolbox, University of California, Berkeley, Technical Report
11. Paschedag, T., Giua, A., Seatzu, C.: Constrained optimal control: an application to semiactive suspension systems, 14th Mediterranean Conference on Control and Automation, 2006, Ancona
12. Wu, Z., Stoustrup, J., Trangbaek, K., Heiselberg, P., Jensen, M.: Model predictive control of the hybrid ventilation for livestock, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006
13. Corona, D., Necoara, I., De Schutter, B., van den Boom, T.: Robust hybrid MPC applied to the design of an adaptive cruise controller for a road vehicle, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006
14. Jones, C., Maciejowski, J.: Revers Search for Parametric Linear Programming, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006
15. Avni, O., Borrelli, F., Katzir, G., Rivlin, E., Rotstein, H.: Using Dynamic Optimization for Reproducing the Chameleon Visual System, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006
16. Dristas, L., Nikolakopoulos, G., Tzes, A.: Constrained Optimal Control over Networks with Uncertain Delays, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006
17. Bemporad, A.: Model Predictive Control Design: New Trends and Tools, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006
18. Dorea, C.: Set-Invariant Estimators for Multiple-Output Discrete-Time Systems, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006
19. Vasak, M., Klanjic, D., Peric, N.: Piecewise Affine Identification of MIMO Processes, 2006 IEEE International Conference on Control Applications, Munich, Germany, October 4-6, 2006
20. Collins, P., Habets, L., Kuut, A., Nool, M., Petreczky, M., van Schuppen, J.: ConPAHS – A Software Package for Control of Piecewise-Affine Hybrid Systems, 2006 IEEE International Conference on Control Applications, Munich, Germany, October 4-6, 2006
21. Corona, D., Lazar, M., de Schutter, B., Heemels, M.: A hybrid MPC approach to the design of a Smart adaptive cruise controller, 2006 IEEE International Conference on Control Applications, Munich, Germany, October 4-6, 2006
22. Fukushima, H., Saito, R., Matsuno, F., Hada, Y., Kawabata, K., Asama, H.: Model Predictive Control of an Autonomous Blimp with Input and Output Constraints, 2006 IEEE International Conference on Control Applications, Munich, Germany, October 4-6, 2006
23. Maciejowski, J.: The changing face and role of CACSD, 2006 IEEE International Conference on Control Applications, Munich, Germany, October 4-6, 2006
24. Harrison, C., Qin, J.: A Minimum Variance Performance Map for Linear Model Predictive Control System, Technical Report, University of Texas at Austin, 2006
25. Wan, J.: Computationally Reliable and Efficient Approaches of Contractive MPC for Discrete-Time Systems, PhD Thesis, University of Girona, Spain, 2006
26. Leonidas Dritsas, George Nikolakopoulos, and Anthony Tzes: Constrained Finite Time Control of Networked Systems with Uncertain Delays, Mediteranian Conference 2006
27. George Nikolakopoulos, Leonidas Dritsas, Anthony Tzes, and John Lygeros: Adaptive Constrained Control of Uncertain ARMA-Systems based on Set Membership Identification, Mediteranian Conference 2006
28. Tina Paschedag, Alessandro Giua, Carla Seatzu: Constrained optimal control: an application to semiactive suspension systems, Mediteranian Conference 2006
29. Preitl, Z., Precup, R., Tar, J., Takacs, M.: Use of Multi-parametric Quadratic Programming in Fuzzy Control Systems, Acta Polytechnica Hungarica, Vol. 3, No. 3, 2006
30. Harrison, A.: Towards the Performance Monitoring of Constrained Control System, PhD thesis, University of Texas, Austin
31. Kang, K., Bitmead, R.: Online reference computation for feasible model predictive control, Proceedings of the 46th IEEE Conference on Decision and Control, New Orleans, LA, Dec 12-14, 2007
32. Corona, D., De Schutter, B.: Comparison of a linear and a hybrid adaptive cruise controller for a SMART, Proceedings of the 46th IEEE Conference on Decision and Control, New Orleans, LA, Dec 12-14, 2007
33. Canale, M., Fagiano, L., Milanese, M.: Fast implementation of predictive controllers using SM approximation methodologies, Proceedings of the 46th IEEE Conference on Decision and Control, New Orleans, LA, Dec 12-14, 2007
34. Kwiatkowski, A., Trimpe, S., Werner, H.: Less conservative polytopic LPV models for charge control by combining parameter set mapping and set intersection, Proceedings of the 46th IEEE Conference on Decision and Control, New Orleans, LA, Dec 12-14, 2007



35. Hara, N., Kojima, A.: Reduced order model predictive control method based on decomposition of discrete-time linear systems, Proceedings of the 46th IEEE Conference on Decision and Control, New Orleans, LA, Dec 12-14, 2007
36. Lazar, M., de la Pena, D., Munoz Heemels, W.P.M.H., Alamo, T.: New Methods for Computing the Terminal Cost for Min-max Model Predictive Control, American Control Conference, 2007, 4476-4481
37. GONDHALEKAR, R., IMURA, J.: Performance Measures in Model Predictive Control with Non-Linear Prediction Horizon Time-Discretization, European Control Conference 2007
38. Andreas Ulbig, Sorin Olaru, Didier Dumur and Patrick Boucher, Explicit Solutions for Nonlinear Model Predictive Control: A Linear Mapping Approach, European Control Conference 2007
39. Yang Wang, Colin Jones and Jan Maciejowski, Efficient point location via subdivision walking with application to explicit MPC, European Control Conference 2007
40. Boyan Yordanov, Gregory Batt, and Calin Belta, Model Checking Discrete-Time Piecewise Affine Systems: Application to Gene Networks, European Control Conference 2007
41. Panagiotis Patrinos and Haralambos Sarimveis, An explicit optimal control approach for mean-risk dynamic portfolio allocation, European Control Conference 2007
42. George Nikolakopoulos, Nikolaos J. Roussos: Optimal Depth Controller for an Autonomous Underwater Vehicle under constraints and uncertainties, European Control Conference 2007
43. GONDHALEKAR, R., IMURA, J.: Performance Measures in Model Predictive Control with Non-Linear Prediction Horizon Time-Discretization, European Control Conference 2007
44. Zavacka, Bakosova, Vanekova: Design of Robust PI, PID Controllers for Control of Systems with Parametric Uncertainty, 18th International Congress of Chemical and Process Engineering, Prague
45. Kang, K., Bitmead, R.: Contraction Based Model Predictive Control, International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control 2008
46. Takeshi Hatanakay, Teruki Yamaday, Masayuki Fujitay, Shigeru Morimotoz and Masayuki Okamoto: Explicit Receding Horizon Control of Automobiles with Continuously Variable Transmissions, International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control 2008
47. Alessandro Alessio and Alberto Bemporad: A Survey on Explicit Model Predictive Control, International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control 2008
48. Fernando A.C.C. Fontes, Dalila B.M.M. Fontes, Amlia C. D. Caldeira: NMPC with Bang-Bang and Affine Optimal Control Parameterizations: Application to Fast Vehicle Formations, International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control 2008
49. Ulbig, A., Olaru, S., Dumur, D: Explicit Model Predictive Control for a Magnetic Levitation System, 16th Mediterranean Conference on Control and Automation
50. Zavacka, Bakosova, Vanekova: Design of Robust PI, PID Controllers for Control of Systems with Parametric Uncertainty, 8th international scientific conference Process Control 2008, Kouty nad Desnou, Czech Republic
51. Zavacka, Bakosova, Vanekova: Design of Robust PI, PID Controllers for Control of Systems with Parametric Uncertainty, 35th International Conference of SSCHE, Tatranske Matliare, Slovakia
52. Solberg, Andersen, Maciejowski, Stoustrup: Hybrid Model Predictive Control Applied to Switching Control of Burner Load for a Compact Marine Boiler Design, Proceedings of the 17th World IFAC Congress, Seoul, Korea
53. Sui, D., Feng, L., Ong, C., Hovd, M.: Robust Explicit Time Optimal Controllers for Linear Systems via Decomposition Principle, Proceedings of the 17th World IFAC Congress, Seoul, Korea
54. Trangbaek, K: Constrained control of a once-through boiler with recirculation, Proceedings of the 17th World IFAC Congress, Seoul, Korea
55. Manum, H., Narasimhan, S., Skogestad, S: Explicit MPC with output feedback using self-optimizing control, Proceedings of the 17th World IFAC Congress, Seoul, Korea
56. Hatanaka, T., Takaba, K.: Probabilistic Assurance of Constraint Fulfillment against Model Uncertainties and Disturbances, Proceedings of the 17th World IFAC Congress, Seoul, Korea
57. Sui, D., Feng, L., Hovd, M.: Algorithms for Online Implementations of Explicit MPC Solutions, Proceedings of the 17th World IFAC Congress, Seoul, Korea
58. Thomas, J., Dumur, D., Olaru, S., Buisson, J: Reachability and Robust Control of PWA Systems with Parameter Variations and Bounded Disturbance, Proceedings of the 17th World IFAC Congress, Seoul, Korea
59. Althoff, M., Stursberg, O., Buss, M.: Verification of Uncertain Embedded Systems by Computing Reachable Sets based on Zonotopes, Proceedings of the 17th World IFAC Congress, Seoul, Korea
60. Hara, N., Kojima, A.: Stabilizing reduced order model predictive control for constrained linear systems, Proceedings of the 17th World IFAC Congress, Seoul, Korea
61. Langthaler, P., del Re, L.: Robust Model Predictive Control of a Diesel Engine Airpath, Proceedings of the 17th World IFAC Congress, Seoul, Korea
62. BENLAOUKLI, H., Olaru, S., Boucher, P.: Computation and bounding of robust invariant sets for uncertain systems, Proceedings of the 17th World IFAC Congress, Seoul, Korea
63. Hlava, J., Sulc, B.: Advanced Modelling and Control using a Laboratory Plant with Hybrid Processes, Proceedings of the 17th World IFAC Congress, Seoul, Korea
64. Paschalidis, I., Kang, S., Li, K.: Distribution-Dependent Robust Linear Optimization with Asymmetric Uncertainty and Application to Optimal Control, Proceedings of the 17th World IFAC Congress, Seoul, Korea
65. Spjotvold, J.: Parametric programming in control theory, PhD thesis, NUT Trondheim
66. Kamide, Y., Zanma, T., Ishida, M.: Position control using off-line model predictive control in piecewise affine system experimental verification, Advanced Motion Control, 2008. AMC '08. 10th IEEE International Workshop on, 26-28 March 2008
67. Manum, H., Narasimhan, S., Skogestad, S: A new approach to explicit MPC using self-optimizing control, American Control Conference 2008, Seattle, USA
68. Naus, G., van den Bleek, R., Ploeg, J., Scheepers, B., van de Molengraft, R., Steinbuch, M.: Explicit MPC design and performance evaluation of an ACC Stop-&-GO, American Control Conference 2008, Seattle, USA
69. Sui, D., Feng, L., Hovd, M.: Robust Output Feedback Model Predictive Control for Linear Systems via Moving Horizon Estimation, American Control Conference 2008, Seattle, USA
70. Yordanov, B., Belta, C.: Formal Analysis of Piecewise Affine Systems under Parameter Uncertainty with Application of Gene Networks, American Control Conference 2008, Seattle, USA
71. Matri, N., Oishi, M.: Reachability-based abstraction for an aircraft landing under shared control, American Control Conference 2008, Seattle, USA
72. Habibi, J., Sedigh, A.: Suboptimal Control of Hybrid Systems Using Approximate Multi-parametric MILP, Proceedings of the 47th IEEE Conference on Decision and Control, Cancun, Mexico

73. Borrelli, F., Del Vecchio, C., Parisio, A.: Robust Invariant Set Theory Applied to Networked Buffer-Level Control, Proceedings of the 47th IEEE Conference on Decision and Control, Cancun, Mexico
74. Moser, C., Thiele, L., Brunelli, D., Benini, L.: Robust and low complexity rate control for solar powered sensors, Proceedings - Design, Automation and Test in Europe, DATE, art. no. 4484691, pp. 230-235
75. Cychowski, M., Delaney, K., Szabat, K.: Low-cost high-performance predictive control of drive systems with elastic coupling, 2008 13th International Power Electronics and Motion Control Conference, EPE-PEMC 2008, art. no. 4635597, pp. 2241-2247
76. Hadas, K.-G., Ayanian, N., Pappas, G.J., Kumar, V.: Recycling controllers, 4th IEEE Conference on Automation Science and Engineering, CASE 2008, art. no. 4626521, pp. 772-777
77. Bolognani, S., Bolognani, S., Peretti, L., Zigliotto, M.: Combined speed and current model predictive control with inherent field-weakening features for PMSM drives, Proceedings of the Mediterranean Electrotechnical Conference - MELECON, art. no. 4618480, pp. 472-478
78. Zhang, X., Hu, L., Cao, G.: Robust model predictive control for linear systems with constraints, Proceedings of the World Congress on Intelligent Control and Automation (WCICA), art. no. 4593828, pp. 5508-55
79. Drietas, L., Tzes, A.: Constrained control of event-driven networked systems, IFAC Proceedings Volumes (IFAC-PapersOnline) 17 (1)
80. Long, R., Fu, J., Zhang, L.: Optimal control of switched system based on neural network optimization, Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 5227 LNAI, pp. 799-806
81. Holena M, Genetic Algorithms for the Optimization of Catalysts in Chemical Engineering: WCECS 2008: WORLD CONGRESS ON ENGINEERING AND COMPUTER SCIENCE Book Series: Lecture Notes in Engineering and Computer Science Pages: 969-974
82. Hlava J, Tuma L: Co-ordinated continuous and logical control via hybrid model predictive control - an experimental study, PROCEEDINGS OF THE 7TH WSEAS INTERNATIONAL CONFERENCE ON SYSTEM SCIENCE AND SIMULATION IN ENGINEERING (ICOSSSE '08) - RECENT ADVANCES IN SYSTEMS SCIENCE AND SIMULATION IN ENGINEERING Book Series: Mathematics and Computers in Science and Engineering Pages: 256-261
83. Pregelj, B., Gerksic, S.: Hybrid Multi-Parametric Model Predictive Control of a Nonlinear Process Approximated with a Piecewise Affine Model, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
84. Richards, A., Stewart, W., Wilkinson, A.: Auto-coding Implementation of Model Predictive Control with Application to Flight Control, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
85. Yfoulis, Ch., Gounaris, A.: Honoring SLAs on Cloud Computing Services: A Control Perspective, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
86. Hartley, E., Maciejowski, J.: Initial Tuning of Predictive Controllers by Reverse Engineering, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
87. Gonzalez, R., Fiacchini, M., Alamo, T., Guzman, J., Rodriguez, F.: Adaptive Control for a Mobile Robot under Slip Conditions using an LMI-bases Approach, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
88. Scibilia, F., Olaru, S., Hovd, M.: Approximate Explicit Linear MPC via Delaunay Tessellation, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
89. Kearney, M., Rakovic, S., McAree, P.: Control Correction Synthesis: A Set-Theoretic Approach, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
90. Gaulocher, S., Papafotiou, G.: Explicit Moving Horizon Estimation in DC-DC Converters, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
91. Hermans RM, Lazar A, Di Cairano S, et al.: Low-complexity Model Predictive Control of Electromagnetic Actuators with a Stability Guarantee, 2009 AMERICAN CONTROL CONFERENCE, VOLS 1-9 Book Series: PROCEEDINGS OF THE AMERICAN CONTROL CONFERENCE Pages: 2708-2713 Published: 2009
92. Kumar G, Tiwari PY, Marcopoli V, et al.: A Study of a Gun-Turret Assembly in an Armored Tank using Model Predictive Control, 2009 AMERICAN CONTROL CONFERENCE, VOLS 1-9 Book Series: PROCEEDINGS OF THE AMERICAN CONTROL CONFERENCE Pages: 4848-4853 Published: 2009
93. Cychowski, M., Szabat, K.: Model predictive speed control with optimal torque constraints handling of drive systems with elastic transmission, 2009 IEEE International Electric Machines and Drives Conference, IEMDC '09, art. no. 5075214, pp. 251-258
94. Gerksic S, Pregelj B: Disturbance Rejection Tuning of a Tracking Multi-Parametric Predictive Controller, 2009 IEEE INTERNATIONAL CONFERENCE ON INDUSTRIAL TECHNOLOGY, VOLS 1-3 Pages: 1158-1163 Published: 2009
95. Batz T, Watson K, Beyerer J: Recognition of dangerous situations within a cooperative group of vehicles, 2009 IEEE INTELLIGENT VEHICLES SYMPOSIUM, VOLS 1 AND 2 Book Series: IEEE Intelligent Vehicles Symposium Pages: 907-912
96. Dong LX, Dou LH, Feng HP, Hybrid Time-Optimal Predictive Control for Mechanical Systems with Backlash Nonlinearity, PROCEEDINGS OF 2008 IEEE/ASME INTERNATIONAL CONFERENCE ON MECHATRONIC AND EMBEDDED SYSTEMS AND APPLICATIONS Pages: 281-285 Published: 2008
97. Benlaoukli H, Olaru S, Model Predictive Control - Numerical Methods for the Invariant Sets Approximation, NUMERICAL ANALYSIS AND ITS APPLICATIONS - 4TH INTERNATIONAL CONFERENCE, NAA 2008 Book Series: LECTURE NOTES IN COMPUTER SCIENCE Volume: 5434 Pages: 192-199 Published: 2009
98. Traskov D, Medard M, Sadeghi P, et al.: Joint Scheduling and Instantaneously Decodable Network Coding; Source: GLOBECOM 2009 - 2009 IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE, VOLS 1-8 Book Series: IEEE Global Telecommunications Conference (Globecom) Pages: 3835-3840 Published: 2009
99. Zou, Y., Li, S.: Robust constrained model predictive control of piecewise linear systems with bounded additive disturbances; Proceedings of the IEEE Conference on Decision and Control , art. no. 5399589, pp. 6339-6344
100. Rakovic SV, Kearney MP, McAree PR: Robust Control Correction Synthesis: A Set Theoretic Approach; Source: 2009 IEEE INTERNATIONAL CONFERENCE ON CONTROL AND AUTOMATION, VOLS 1-3 Book Series: IEEE International Conference on Control and Automation ICCA Pages: 500-506 Published: 2009
101. Benlaoukli H, Olaru S, Marinkovic S, et al.: Invariant set constructions for feasible reference tracking; 2009 IEEE INTERNATIONAL CONFERENCE ON CONTROL AND AUTOMATION, VOLS 1-3 Book Series: IEEE International Conference on Control and Automation ICCA Pages: 972-977 Published: 2009
102. Trodden P, Richards A: Adaptive Cooperation in Robust Distributed Model Predictive Control; 2009 IEEE CONTROL APPLICATIONS CCA & INTELLIGENT CONTROL (ISIC), VOLS 1-3 Book Series: IEEE International Conference on Control Applications Pages: 896-901 Published: 2009
103. Weimer J, Sinopoli B, Krogh BH: Multiple Source Detection and Localization in Advection-Diffusion Processes Using Wireless Sensor Networks ; 2009 30TH IEEE REAL-TIME SYSTEMS SYMPOSIUM, PROCEEDINGS Book Series: REAL-TIME SYSTEMS SYMPOSIUM - PROCEEDINGS Pages: 333-342 Published: 2009
104. Horalek R, Hlava J: Piecewise affine approximation of nonlinear systems - a case study of a benchmark nonlinear boiler; PROCEEDINGS OF THE 8TH WSEAS INTERNATIONAL CONFERENCE ON SYSTEM SCIENCE AND SIMULATION IN

- ENGINEERING (ICOSSE '09) Book Series: Mathematics and Computers in Science and Engineering Pages: 273-277  
Published: 2009
105. Zanini F, Atienza D, Benini L, et al.: Multicore Thermal Management with Model Predictive Control; 2009 EUROPEAN CONFERENCE ON CIRCUIT THEORY AND DESIGN, VOLS 1 AND 2 Pages: 711-714 Published: 2009
  106. Thomas J, Olaru S, Buisson J, et al.: Attainability and Set Analysis for Uncertain PWA Systems with Parameter Variations and Bounded Disturbance; CCDC 2009: 21ST CHINESE CONTROL AND DECISION CONFERENCE, VOLS 1-6, PROCEEDINGS Pages: 4223-4229 Published: 2009
  107. Cychowski M, Szabat K: Model Predictive Speed Control with Optimal Torque Constraints Handling of Drive Systems with Elastic Transmission; 2009 IEEE INTERNATIONAL ELECTRIC MACHINES & DRIVES CONFERENCE, VOLS 1-3 Pages: 251-258 Published: 2009
  108. Sui D, Feng L, Hovd M: Explicit Moving Horizon Control and Estimation: A Batch Polymerization Case Study; ICIEA: 2009 4TH IEEE CONFERENCE ON INDUSTRIAL ELECTRONICS AND APPLICATIONS, VOLS 1-6 Pages: 1647-1652 Published: 2009
  109. Moser C, Chen JJ, Thiele L: Dynamic Power Management in Environmentally Powered Systems; Source: 2010 15TH ASIA AND SOUTH PACIFIC DESIGN AUTOMATION CONFERENCE (ASP-DAC 2010) Book Series: Asia and South Pacific Design Automation Conference Proceedings Pages: 79-86
  110. Dang T, Maler O, Testylier R: Accurate Hybridization of Nonlinear Systems; HSSC 10: PROCEEDINGS OF THE 13TH ACM INTERNATIONAL CONFERENCE ON HYBRID SYSTEMS: COMPUTATION AND CONTROL Pages: 11-19 Published: 2010
  111. Rétvári, G., Németh, G.: On optimal multipath rate-adaptive routing; Proceedings - IEEE Symposium on Computers and Communications, art. no. 5546757, pp. 605-610
  112. Bayat, F., Johansen, T.A., Jalali, A.A.: Managing time-storage complexity in point location problem: Application to explicit Model Predictive Control; 18th Mediterranean Conference on Control and Automation, MED'10 - Conference Proceedings, art. no. 5547804, pp. 610-615
  113. Uchiyama, Yasuhiro; Hatanaka, Takeshi; Fujita, Masayuki: 2DOF control of an electrodynamic shaker using explicit receding horizon control for feedforward term; Control Applications (CCA), 2010 IEEE International Conference on, 596 - 601
  114. Alexis, K.; Nikolakopoulos, G.; Tzes, A.: Design and experimental verification of a Constrained Finite Time Optimal control scheme for the attitude control of a Quadrotor Helicopter subject to wind gusts; Robotics and Automation (ICRA), 2010 IEEE International Conference on, 3-7 May 2010, 1636 - 1641
  115. Vaclavek, P.; Blaha, P.: Model based high-performance PMSM drive control; SICE Annual Conference 2010, Proceedings of, 18-21 Aug. 2010, 227 - 232
  116. Varma, M.K.; Eunmi Choi: Evolution of motion plan for helicopter model using Model Predictive Control; New Trends in Information Science and Service Science (NISS), 2010 4th International Conference on, 11-13 May 2010, 301 - 306
  117. Zhao Xu; Wang Yuhong; Lu Di: Fault prediction technique based on hybrid verification; Control Conference (CCC), 2010 29th Chinese, 29-31 July 2010, 1500 - 1505
  118. Ulbig, A.; Galus, M.D.; Chatzivasileiadis, S.; Andersson, G.: General frequency control with aggregated control reserve capacity from time-varying sources: The case of PHEVs; Bulk Power System Dynamics and Control (iREP) - VIII (iREP), 2010 iREP Symposium, 1-6 Aug. 2010, On page(s): 1 - 14
  119. Yin, Xun-He; Meng, Xiang-Long; Wang, Zhen-Bang; Song, Yong-Duan; Cui, Qing-Quan: MLD Approach for Modeling and Predictive Control of Two-Tank Dynamic System over Networks; Electrical and Control Engineering (ICECE), 2010 International Conference on, 25-27 June 2010, On page(s): 5327 - 5332
  120. Szabat, K.; Serkies, P.; Nalepa, R.; Cychowski, M.: Predictive position control of elastic dual-mass drives under torque and speed constraints; Power Electronics and Motion Control Conference (EPE/PEMC), 2010 14th International, 6-8 Sept. 2010, On page(s): T5-79 - T5-83
  121. Valencia-Palomo, G.; Rossiter, J.A.: Using Laguerre functions to improve efficiency of multi-parametric predictive control; June 30 2010-July 2 2010, On page(s): 4731 - 4736
  122. Kress-Gazit, H.; Pappas, G.J.: Automatic synthesis of robot controllers for tasks with locative prepositions; Robotics and Automation (ICRA), 2010 IEEE International Conference on, 3-7 May 2010, On page(s): 3215 - 3220
  123. Savkovic, B.: Time-variant robust model predictive control under limited capacity communication constraints; American Control Conference (ACC), 2010, June 30 2010-July 2 2010, On page(s): 3162 - 3167
  124. Kogiso, Kiminao; Doi, Yuta; Hirata, Kenji; Hirade, Naofumi: Parametric approximation of maximal output admissible sets and its application to multi-mode switching control under unknown constant Reference; Intelligent Control (ISIC), 2010 IEEE International Symposium on, 8-10 Sept. 2010, 2105 - 2111
  125. Alexis, K.; Nikolakopoulos, G.; Tzes, A.: Constrained-control of a quadrotor helicopter for trajectory tracking under wind-gust disturbances; MELECON 2010 - 2010 15th IEEE Mediterranean Electrotechnical Conference, 26-28 April 2010, 1411 - 1416
  126. Vanekova, Katarina; Bakosova, Monika; Matusu, Radek; Prokop, Roman; Zavacka, Jana: Robust PI controller design for a laboratory time delay process, Control & Automation (MED), 2010 18th Mediterranean Conference on, 23-25 June 2010, On page (s): 1000 - 1005
  127. Alexis, K.; Nikolakopoulos, G.; Tzes, A.: Constrained optimal attitude control of a quadrotor helicopter subject to wind-gusts: Experimental studies; American Control Conference (ACC), 2010, June 30 2010-July 2 2010, On page(s): 4451 - 4455
  128. Kaynama, S.; Oishi, M.: Overapproximating the reachable sets of LTI systems through a similarity transformation, American Control Conference (ACC), 2010, June 30 2010-July 2 2010, 1874 - 1879
  129. Cychowski, M.; Jaskiewicz, R.; Szabat, K.: Model Predictive Control of an elastic three-mass drive system with torque constraints; Industrial Technology (ICIT), 2010 IEEE International Conference on, 14-17 March 2010, On page(s): 379 - 385
  130. Bayat, Farhad; Jalali, Ali Akbar: Constant reference tracking for fast linear constrained systems; Intelligent Control (ISIC), 2010 IEEE International Symposium on, 8-10 Sept. 2010, On page(s): 2308 - 2313
  131. Moser, C.; Jian-Jia Chen; Thiele, L.: Dynamic power management in environmentally powered systems; Design Automation Conference (ASP-DAC), 2010 15th Asia and South Pacific, 18-21 Jan. 2010, On page(s): 81 - 88

**Citovaná publikácia Grieder, P. – Kvasnica, M. – Baotic, M. – Morari, M.: Stabilizing low complexity feedback control of constrained piecewise affine systems. Automatica, vol. 41, issue 10, pp. 1683–1694, 2005.**

132. Lazar, M., Heemels, W.P.M.H., Weiland, S., Bemporad, A.: Stabilization conditions for model predictive control of constrained PWA systems, Proceedings of the IEEE Conference on Decision and Control 5, pp. 4595-4600
133. Kosmidis, V., Panga, A., Sakizlis, V., Charles, G., Kenchington, S., Bozinis, N., Pistikopoulos, E.: Output Feedback Parametric Controllers for an Active Valve Train Actuation System, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006

134. Galeani, S., Abdallah, C.: Statistical Learning Algorithms in Optimal and Robust Control of Hybrid Systems, 5th IFAC Symposium on Robust Control Design, Toulouse, France, July 5-7, 2006
135. Vasak, M., Zarko, D., Peric, N., Kolonic, F., Hao, Ch.: Bounding the torque ripple in switched reluctance motors using polyhedral invariant set theory, Proceedings of the 46th IEEE Conference on Decision and Control, New Orleans, LA, Dec 12-14, 2007
136. Lazar, M., Heemels, W.P.M.H., Teel, A.R., Subtleties in Robust Stability of Discrete-time Piecewise Affine Systems, American Control Conference, 2007, 3464-3469
137. Dristas, L., Tzes, A.: Constrained Control of Event-Driven Networked Systems, Proceedings of the 17th World IFAC Congress, Seoul, Korea
138. Sui, D., Feng, L., Ong, C., Hovd, M.: Robust Explicit Time Optimal Controllers for Linear Systems via Decomposition Principle, Proceedings of the 17th World IFAC Congress, Seoul, Korea
139. Li, J., Pei, H., Liu, X., He, Y., Chen, Y.: Hybrid systems model and control of a small unmanned helicopter, Proceedings of the 27th Chinese Control Conference, CCC, art. no. 4605492, pp. 641-645
140. Zhang, X., Hu, L., Cao, G.: Robust model predictive control for linear systems with constraints, Proceedings of the World Congress on Intelligent Control and Automation (WCICA), art. no. 4593828, pp. 5508-55
141. Pregelj, B., Gerksic, S.: Hybrid Multi-Parametric Model Predictive Control of a Nonlinear Process Approximated with a Piecewise Affine Model, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
142. Kobayashi, K., Imura, J.-I., Hiraishi, K.: Stabilizing model predictive control of hybrid systems with discrete dynamics; ICCAS-SICE 2009 - ICROS-SICE International Joint Conference 2009, Proceedings, art. no. 5334378, pp. 4831-4836

**Citovaná publikácia Rakovic, S. – Grieder, P. – Kvasnica, M. – Mayne, D. – Morari, M.: Computation of Invariant Sets for Piecewise Affine Discrete Time Systems subject to Bounded Disturbances. In IEEE Conference on Decision and Control, Bahamas, pp. 1418–1423, 2004.**

143. Vašak, M., Baotić, M., Petrović, I., Perić, N.: Hybrid theory based time-optimal control of an electronic throttle, IEEE International Symposium on Industrial Electronics I, art. no. 1528921, pp. 253-258
144. Lazar, M., Heemels, W.P.M.H., Weiland, S., Bemporad, A.: On the stability of quadratic forms based model predictive control of constrained PWA systems, Proceedings of the American Control Conference 1, pp. 575-580
145. Alessio, A., Bemporad, A., Lazar, M., Heemels, W.: Convex Polyhedral Invariant Sets for Closed-Loop Linear MPC Systems, Proceedings of the 45th IEEE Conference on Decision & Control, San Diego, CA, USA, December 13-15, 2006
146. Lazar, M., Heemels, W.: A new dual-mode hybrid MPC algorithm with stability guarantee, Preprints of the 2nd IFAC Conf. on Analysis and Design of Hybrid Systems (Alghero, Italy), 7-9 June 2006
147. Fiacchini, M., Alamo, T., Camacho, E. F., Piecewise Affine Model of a Fuel Cell for Safety Verification, American Control Conference, 2007, 4160-4165
148. Bernardini, D., Bemporad, A.: Energy-Aware Robust Model Predictive Control Based On Wireless Sensor Feedback, Proceedings of the 47th IEEE Conference on Decision and Control, Cancun, Mexico
149. Li, J., Pei, H., Liu, X., He, Y., Chen, Y.: Hybrid systems model and control of a small unmanned helicopter, Proceedings of the 27th Chinese Control Conference, CCC, art. no. 4605492, pp. 641-645
150. Bernardini, D., Bemporad, A.: Energy-Aware Robust Model Predictive Control with Feedback from Multiple Noise Wireless Sensors, Proceedings of the European Control Conference 2009, Budapest, Hungary, August 23-26, 2009
151. Fan, G.-W., Liu, Z.-Y., Chen, H.: Feedback control of discrete linear switching systems with bounded state and control input in the presence of disturbances; Zidonghua Xuebao/Acta Automatica Sinica 36 (8), pp. 1115-1121

**Citovaná publikácia Christophersen, F. J. – Kvasnica, M. – Jones, C. N. – Morari, M.: Efficient Evaluation of Piecewise Control Laws defined over a Large Number of Polyhedra. Editor(s): S. G. Tzafestas, P. J. Antsaklis, In Proceedings of the European Control Conference ECC '07, pp. 2360–2367, 2007.**

152. Bemporad, A.; Heemels, W.P.M.H.; Lazar, M.: On the synthesis of piecewise affine control laws; Circuits and Systems (ISCAS), Proceedings of 2010 IEEE International Symposium on; May 30 2010-June 2 2010, On page(s): 3308 - 3311

**Citovaná publikácia Di Cairano S. – Bemporad, A. – Kvasnica, M. – Morari, M.: An architecture for data interchange of switched linear systems. Technical Report D 3.3.1, HYCON NoE, 2006.**

153. van Beek, D., Reniers, M., Rooda, J., Schiffelers, R.: Concrete syntax and semantics of the compositional interchange format for hybrid systems, Proceedings of the 17th World IFAC Congress, Seoul, Korea

**Citovaná publikácia Suard, R. – Löfberg, J. – Grieder, P. – Kvasnica, M. – Morari, M.: Efficient Computation of Controller Partitions in Multi-Parametric Programming. In IEEE Conference on Decision and Control, Bahamas, pp. 3643–3648, 2004.**

154. GONDHALEKAR, R., IMURA, J.: Performance Measures in Model Predictive Control with Non-Linear Prediction Horizon Time-Discretization, European Control Conference 2007

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