Dr. CHENQI MOU

Assistant Professor
School of Mathematics and Systems Science
Beihang University, China

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Beijing 100191, China

Born on Nov. 14, 1984
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RESEARCH INTERESTS

Symbolic Computation, Polynomial System Solving (Theoretical Computer Science / Applied Mathematics)

PROFESSIONAL POSITIONS

Sep. 2013 – Now Assistant Professor, *Beihang University, China*

EDUCATION

Ph.D. (Double Degrees) in Applied Mathematics / Computer Science Jul. 2013
Beihang University, Beijing, China / Université Pierre et Marie Curie, Paris, France

- Supervisors: Dongming Wang, Professor / Jean-Charles Faugère, Research Director
- Thesis: Solving Polynomial Systems over Finite Fields: Algorithms, Implementation and Applications

Bachelor of Science in Mathematics and Applied Mathematics Jul. 2007
Beihang University, Beijing, China

GRANTS AWARDED

Elimination Theory and Methods Based on Connections Between Characteristic Sets and Groebner Bases 480,000 CNY
National Natural Science Foundation of China, Participant Jan. 2018 – Dec. 2021

Triangular Decomposition Methods for Structured Polynomial Systems 220,000 CNY
National Natural Science Foundation of China, Principal Investigator Jan. 2015 – Dec. 2017

Efficient Symbolic Computation Algorithms for Solving Sparse Polynomial Systems 200,000 CNY
Basic Scientific Funding for Central Universities in China, Principal Investigator Mar. 2014 – Dec. 2014

ACADEMIC ACTIVITIES

Committee Member of

- Chinese Society of Computer Mathematics, 2016–2019

Member of Program Committee of

- 13th International Conference on Artificial Intelligence and Symbolic Computation *Suzhou, China*, Sep. 2018
- Computer Mathematics 2017 *Xiangtan, China*, Oct. 2017
- Computer Mathematics 2016 *Shenzhen, China*, Nov. 2016

- 5th International Congress on Mathematical Software *Berlin, Germany*, Jul. 2016
- 6th International Conference on Mathematical Aspects of Computer and Information Sciences *Berlin, Germany*, Nov. 2015

Chair of Organization Committee for

- 4th Summer School in Symbolic Computation, *Beijing, China*, Aug. 2015

Publicity Co-chair for

- 5th International Conference on Mathematical Aspects of Computer and Information Sciences *Nanning, China*, Dec. 2013

Co-organizer for

- International Seminar on Differential, Difference, and Algebraic Systems with Applications *Nanning, China*, Jan. 2018
- Workshop in Logic, Algebra and Computation, *Beijing, China*, Dec. 2013

Member of Local Arrangements for

- 4th International Conference on Mathematical Aspects of Computer and Information Sciences *Beijing, China*, Oct. 2011
- First International Conference on Symbolic Computation and Cryptography *Beijing, China*, Apr. 2008

Scientific visits at

- INRIA Nancy Grand-Est, Nancy, France Nov. 2015
- LIP6, Université Pierre et Marie Curie, Paris, France Nov. 2014

SELECTED CONFERENCE TALKS

Decomposing polynomial sets simultaneously into Grbner bases and normal triangular sets
The 19th International Workshop on Computer Algebra in Scientific Computing *Beijing, China*, Sep. 2017

On the Connection Between Lexicographic Gröbner Bases and Triangular Sets
SIAM Conference on Applied Algebraic Geometry 2017 *Atlanta, Georgia, USA*, July-Aug. 2017

Epsilon 1: A Software Library for Triangular Decomposition
The 5th International Congress on Mathematical Software *Berlin, Germany*, Jul. 2016

Triangular sets over F2 VS satisfiability checking: a potential connection and interaction?
Dagstuhl Seminar 15471: Symbolic Computation and Satisfiability Checking
Schloss Dagstuhl, Germany, Nov. 2015

Simple Triangular Decomposition over Finite Fields
ICIAM 2015 (Minisymposia: Triangular decomposition of polynomial systems: solvers and applications)
Beijing, China, Aug. 2015

Sparse FGLM Algorithms for Solving Polynomial Systems
CDZ Sino-German Workshop on Computation and Reasoning with Constraints *Beijing, China*, Nov. 2014

Reconstructing Chemical Reaction Networks by Solving Boolean Polynomial Systems
Fifth International Conference on Mathematical Aspects of Computer and Information Sciences
Nanning, China, Dec. 2013

Fast Algorithm for Change of Ordering of Zero-dimensional Gröbner Bases with Sparse Multiplication Ma-

trices
International Workshop on Certified and Reliable Computation *Nanning, China*, Jul. 2011
International Symposium on Symbolic and Algebraic Computation 2011 *San Jose, USA*, Jun. 2011

LANGUAGES

Chinese: **Native**

English: **Fluent** (Translation Proficiency Qualification Certificate of PRC: level III)

COMPUTER SKILLS

Magma, Maple, Matlab, C/C++ , Linux, LaTeX, Emacs

PUBLICATIONS

Books

[1] D. Wang, **C. Mou**, X. Li, J. Yang, M. Jin, and Y. Huang. *Polynomial Algebra* (in Chinese), Higher Education Press, Beijing, 2011.

Journal Papers

[2] J.-C. Faugère and **C. Mou**. Sparse FGLM algorithms. *Journal of Symbolic Computation*, 2017, 80(3): 538-569

[3] W. Niu, J. Shi, and **C. Mou**. Analysis of codimension 2 bifurcations for high-dimensional discrete systems using symbolic computation methods. *Applied Mathematics and Computation*, 2016, 273: 934-947

[4] **C. Mou** and W. Niu. Application of triangular set methods to detection of steady states and their numbers for finite biological models (in Chinese). *Computer Applications and Software*, 2014, 31(1): 278–282

[5] **C. Mou**, D. Wang, and X. Li. Decomposing polynomial sets into simple sets over finite fields: The positive-dimensional case. *Theoretical Computer Science*, 2013: 468: 102-113

[6] **C. Mou**. Design of termination criterion of BMS algorithm for lexicographical ordering (in Chinese). *Journal of Computer Applications*, 2012, 32(11): 2977–2980

[7] X. Li, **C. Mou**, W. Niu, and D. Wang. Stability analysis for discrete biological models using algebraic methods. *Mathematics in Computer Science*, 2011, 5: 247–262

[8] X. Li, **C. Mou**, and D. Wang. Decomposing polynomial sets into simple sets over finite fields: The zero-dimensional case. *Computers and Mathematics with Applications*, 2010, 60: 2983–2997

Conference Papers

[9] R. Dong and **C. Mou**. Decomposing polynomial sets simultaneously into Gröbner bases and normal triangular sets. *Proceedings of the 19th International on Algebra in Scientific Computing*. Beijing, China, 2017

[10] **C. Mou** and W. Niu. Reconstructing chemical reaction networks by solving Boolean polynomial systems. *Proceedings of the Fifth International Conference on Mathematical Aspects of Computer and Information Sciences*. Nanning, China, 2013

[11] J.-C. Faugère and **C. Mou**. Fast algorithm for change of ordering of zero-dimensional Gröbner bases with sparse multiplication matrices. *Proceedings of the 36th International Symposium on Symbolic and Algebraic Computation*. ACM Press, New York, 2011

[12] X. Li, **C. Mou**, W. Niu, and D. Wang. Stability analysis for discrete biological models using algebraic methods. *International Conference on Mathematical Aspects of Computer and Information Sciences 2009*. Fukuoka, Japan, 2009

Preprint

[13] D. Wang, R. Dong, and **C. Mou**. Decomposition of polynomial sets into characteristic pairs. arXiv:1702.08664 [cs.SC]