
MARIA ABOU CHAKRA

POSITIONS HELD

CURRENT, FROM JAN 2011

Post-Doctoral Researcher

Max Planck Institute, Plön, Germany

Dep. of Evolutionary Theory

Using Evolutionary Game theory to understand the emergence of complex interactions.

2013-2015

Anthony (5.2013) & Olivia (1.2015)

Part-time and Maternity

I have had the opportunity to work part-time and go on maternity during these years.

2002-2010

Research Assistant

McMaster University, Hamilton

Dep. of Biology, Dr J. Stone (2004-2010)

Studied the morphological disparity in echinoid skeletons.

Dep. of Math. and Stats., Dr M. Lovric (2002-2005)

Summarized survey results from educational research.

Dep. of Health Science, Dr J. Bain (2002-2004)

Studied the effects of tension on the various cell layers surrounding a nerve fibre.

2000-2010

Teaching Assistant

McMaster University, Hamilton

Dep. of Biology (2004-2010)

Dep. of Mathematics and Statistics (2000-2004)

Graded students and conducted tutorials.

2000-2005

Material Curator and Programmer

AECON:AGI Traffic Tech, Scarborough

Designed and created billing and material tracking programs.

2001-2002

Programmer

McMaster University, Hamilton

Created a protocol for a mark calculating program.

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EDUCATION

2006-2010 **Doctor of Philosophy**

COMPUTATIONAL BIOLOGY

Dep. of Biology, McMaster University

Thesis: Modelling echinoid skeletal growth and form

2004-2005 **M.Sc., Transferred to Ph.D.**

1999-2003 **Honors Bachelors of Science**

GENERAL BIOLOGY

Dep. of Biology, McMaster University

COMPUTATIONAL EXPERIENCE

1994-present Programming: QBasic, Visual Basic, VBA, C, C++, bash, awk, and python

2004-present Mathematica
Certification for Mathematica Advance Level Foundation

TEACHING EXPERIENCE

2011-2014 **Max-Planck Institute**

Lecturer: designed and presented a course to introduce modelling of biological systems. I offered the course yearly.

Feb. 2013 **Lübeck University**

Co-lecturer: presented a lecture on evolutionary game theory as it applies to host-parasite system.

2004-2009 **McMaster University**

Biology Teaching Assistant: Third year Evolution, Vertebrate Anatomy, and Animal Physiology.

2000-2004 **McMaster University**

Calculus Teaching Assistant: Calculus for Engineering I and II, Science I and II, and Social Sciences.

PUBLICATIONS

Abou Chakra, M., Hilbe C., Traulsen A. (2016) Coevolutionary interactions between Famers and Mafia induce host acceptance of avian brood parasites. *Royal Society Open Science*, in press

Haafke, J., **Abou Chakra, M.**, Becks L. (2016) Eco-evolutionary feedback promotes Red Queen dynamics and selects for sex in predator populations. *Evolution*. 70-3:641-652 doi:10.111/evo12885

Hagel, K. *, **Abou Chakra, M.***, Bauer, B., Traulsen, A., (2016) Which risk scenarios can drive the emergence of costly cooperation? *Scientific Reports*. 6:19269, doi:10.1038/srep19269 * 1st authorship

Abou Chakra, M., Hilbe C. (2015) Modelling the dynamics of crime and punishment: Comment on Statistical physics of crime: A review by M.R. D'Orsogna and M. Perc. *Physics of Life Reviews*, 12:22-23

Abou Chakra, M., Hilbe C., Traulsen A. (2014) Plastic behaviors in hosts promote the emergence of retaliatory parasites. *Scientific Reports*, 4:4251, doi:10.1038/srep04251

Max Planck Press Discover Magazine IFLScience

Nature World News Popular Science Science Daily

Mobley K. B., **Abou Chakra, M.**, Jones A. (2014) No evidence for size-assortative mating in the wild despite mutual mate choice in sex-role-reversed pipefishes. *Ecology & Evolution*. 4:67-78. doi: 10.1002/ece3.907

Abou Chakra, M., Traulsen A. (2014) Under high stakes and uncertainty the rich should lend the poor a helping hand. *Journal of Theoretical Biology*. 341:123-130. doi: 10.1016/j.jtbi.2013.10.004

Abou Chakra, M., Hall B.K., Stone, J. R. (2013) Using Taxonomists Heads to recapitulate craniate-vertebrate phylogenetic history. *Historical Biology* doi:10.1080/08912963.2013.825792

Hilbe C., **Abou Chakra, M.**, Altrock P., Traulsen A. (2013) The evolution of strategic timing in collective-risk dilemmas. *PloS ONE*. 8(6): e66490. doi:10.1371/journal.pone.0066490

Abou Chakra, M., Traulsen A. (2012) Evolutionary dynamics of strategic behavior in a collective-risk dilemma. *PloS Computational Biology*, 8(8): e1002652 doi:10.1371/journal.pcbi.1002652

Abou Chakra, M., Stone, J. R (2011) Holotestoid: A new echinoid test growth model. *Journal of Theoretical Biology*, 285:113-125. doi: 10.1016/j.jtbi.2011.06.019

Abou Chakra, M., Stone, J. R. (2011) Classifying skeleton models to test ideas about growth and form. *Paleobiology*, 37:686-695

Abou Chakra, M., Stone, J. R. (2008) Descartes, Plateau and Sea Urchins. *Design and Nature IV*, WIT Transactions on Ecology and the Environment, 114:97-105

Submitted Work:

Abou Chakra, M., Lovric, M., Stone, J. R. (2015) Testing morphological model on Echinoid growth and form. *Developmental Genes and Evolution*

INVITED TALKS

13.1.2016 CCCC Workshop
Plön Germany.

8.3.2013 5th Workshop Theoretical Biology.
Plön Germany.

12.10.2010 Max Planck Institute.
Plön Germany.

31.10.2008 Biomimetic Symposium.
McGill, Montreal, Canada.

PROFESSIONAL SERVICE

Active Reviewer for:

Journal of Theoretical Biology

APS Physical Review E

PloS ONE & Computational Biology

BMC Biology

2015- **ESEB: Equal Opportunity Committee.** Chair of the subcommittee preparing the official guidelines to improve diversity.

2014- **Unconscious Biases: Equality and Gender Meeting.** Organise discussions and workshops about issues surrounding stereotypes.

2014- **Post-Doctoral and PhD representative.** Representative of all the scientist, I ensure their concerns are heard and considered by the Directors.

2013- **Mentor:** I believe this is lacking in general, so I act as a mentor for several postdocs and graduate students.

2009-2010 **Faculty of Science Graduate Curriculum and Policy Committee.** Attended meetings to assess, vote, and discuss potential programs or new university collaborations.

2008-2009 **Women In Science and Engineering (WISE).** Planned talks, conferences, and workshops.

2012 **Evolution Conference.** &
2006-2009 **Biology Symposium.** Volunteered as a sessional chair, poster and presentation judge.

2006 **Faculty Candidate Search Committee.**

2004-2005 **Lets Talk Science.** Public outreach.