

## MURAT TUĞRUL, PhD (last update: July 26, 2018)

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CONTACT INFORMATION	Halbgasse 14/14, A-1090 Vienna, Austria	<i>Phone:</i> +43-(0)-660-1894-230 <i>E-mail:</i> <a href="mailto:muratugrul@gmail.com">muratugrul@gmail.com</a> <i>Web:</i> <a href="https://murattugrul.wordpress.com">https://murattugrul.wordpress.com</a>
BORN	in April 1, 1983 in Tirebolu / Turkey	
CITIZENSHIP	Austria (2018 - ), Turkey (1983 - 2018)	
LANGUAGES	Turkish (native), English (advanced), German (upper-intermediate), Spanish (intermediate)	
RESEARCH INTEREST	Biological & Statistical Physics; Mathematical & Evolutionary Biology; Genetics & Epigenetics; Gene Regulation; Cancer Biology; Synthetic Biology	
EMPLOYMENT	<b>Postdoctoral Researcher</b> , October 2016 - March 2018 Kovar Lab (Molecular Biology of Solid Tumours), Children's Cancer Research Institute, Vienna, Austria	
EDUCATION	<b>Doctor of Philosophy (PhD)</b> , June 2016 Institute of Science and Technology (IST) - Austria, Klosterneuburg, Austria <i>Thesis Title:</i> Evolution of Transcriptional Regulatory Sequences <i>Research Fields:</i> Gene Regulation, Evolutionary Genetics, Biophysics <i>Advisor:</i> Nick Barton, <i>Co-advisor:</i> Gašper Tkačik <b>M.S., Physics</b> , September 2009 The Institute for Cross-Disciplinary Physics and Complex Systems (University of Balearic Islands-CSIC), Palma de Mallorca, Spain <i>Thesis Title:</i> Simple Branching Models for Macroevolution <i>Advisor:</i> Emilio Hernández García <b>M.S., Computational Sciences &amp; Engineerings</b> , December 2007 Koç University, Sarıyer, Istanbul, Turkey <i>Thesis Title:</i> The Structure and Dynamics of Gene Regulation Networks <i>Advisor:</i> Alkan Kabakçioğlu <b>B.S., Physics</b> , with Honors in Advanced Group, June 2005 Middle East Technical University, Ankara, Turkey <i>Specialisation:</i> Mathematical Physics <i>Minor degree:</i> Philosophy and History of Science	
PUBLICATIONS	<b><u>Submitted, in Review, in Preparation</u></b> <b>Murat Tuğrul</b> and Heinrich Kovar. “ <i>Biophysical understanding of EWS-FLI1 binding leading to Ewing sarcoma disease</i> ”, (in preparation). Saravana P. Selvanathan, Garrett T. Graham, <b>Murat Tuğrul</b> , Eleni M. Tomazou, Heinrich Kovar, Alexander R. Grego, Tabari M. Baker, Mark Simpson, Mona Batish, Brian Crompton, Kimberly Stegmaier, Aykut Üren, Jeffrey A. Toretsky, “ <i>EWS-FLI1 modulated alternative splicing of ARID1A reveals novel oncogenic function through the BAF complex</i> ”, (in review, Nature comm.) <b>Murat Tuğrul</b> , Magdalena Steinrueck, Fabienne Jesse, Srdjan Sarikas, Tiago Paixao, John Bollback, Calin Guet, Gašper Tkačik and Nick Barton. “ <i>Binding Site Evolution of Bacterial RNA polymerase</i> ”, (in preparation). <b><u>Published</u></b> <b>Murat Tuğrul</b> , Tiago Paixao, Nick Barton and Gašper Tkačik. (2015) “ <i>Dynamics of Transcription Factor Binding Site Evolution</i> ”, Plos Genetics, 11(11): e1005639	

Stephanie Keller-Schmidt, **Murat Tuğrul**, Víctor M. Eguíluz, Emilio Hernández-García, and Konstantin Klemm. (2015) “*Anomalous scaling in an age-dependent branching model*,” Physical Review E, v.91, 2, p. 022803

**Murat Tuğrul** & Alkan Kabakçioğlu. (2010) “*Anomalies in the transcriptional regulatory network of Saccharomyces Cerevisiae*”, J. Theoretical Biology 263, pp. 328–336

Emilio Hernández-García, **Murat Tuğrul**, E. Alejandro Herrada, Víctor M. Eguíluz and Konstantin Klemm. (2010) “*Simple Models for Phylogenetic Trees*”, Int. J. Bifurcation and Chaos 20-3, pp. 875-881

**Murat Tuğrul** & Alkan Kabakçioğlu. (2010) “*Robustness of Transcriptional Regulation in Yeast-like Model Boolean Networks*”, Int. J. Bifurcation and Chaos 20-3, pp.929–935

### Outreach, Popular Science, etc.

**Murat Tuğrul** (2017) main editor of the book for Evolution for Teachers (in Turkish)

**Murat Tuğrul** & Murat Naroğlu (2014) A history of science article series on Viennese scientists & coffee houses, Bilim ve Gelecek (a popular science journal in Turkish): Freud & Cafe Landtmann (February); Goedel & Cafe Central (April); Boltzmann & Cafe Jelinek (August), Schroedinger & Cafe Afro (December)

### SELECTED PRESENTATIONS

[O] = Oral, [I] = Invited, [P] = Poster

“*Inferring Evolutionary and Physical Parameters from Empirical Data for Binding Sites of Bacterial RNA Polymerase*”, Workshop on Mathematical and Statistical Aspects of Molecular Biology, Vienna - Austria, (2017). [P]

“*Dynamics of transcription factor binding site evolution*”, Conference of the Society for Molecular Biology and Evolution, Vienna - Austria, (2015). [O]

“*Do evolutionary forces and physical constraints lead to a trade-off between transcription factor binding site length and specificity?*”, Physics of Evolution, Regulation and Signaling - Munich, Germany, (2014). [P]

“*Population genetics of regulatory DNA: inferring selection for RNAP binding sites*”, Congress of European Society for Evolutionary Biology - Lisbon, Portugal (2013). [P]

“*Thermodynamic model for transcription and its evolutionary implications*”, Istanbul Statistical Physics Days, Istanbul, Turkey (2012). [O]

“*What if Mendel, Boltzmann and Darwin had worked together?*”, Think&Drink seminars - IST-Austria, Vienna, Austria, (2012). [O]

“*Boolean Dynamics of Gene Regulation Network of Saccharomyces Cerevisiae (yeast)*”, Istanbul Statistical Physics Days, Istanbul, Turkey, (2008). [O]

“*Structural & Dynamical Aspects of Transcriptional Regulation in Yeast Genetic Network*”, IFISC seminar, Palma de Mallorca, Spain, (2007). [O-I]

### TEACHING & ORGANIZATIONAL EXPERIENCE

Organizer of Workshop on Evolution for Teachers, Izmir, Turkey (August 25-27, 2017)

Organizer of Workshop on Quantitative Evolutionary Biology: understanding evolution with genomes and models, Sirince, Izmir, Turkey (September 14-21, 2014)

Organizer of Workshop on Quantitative Evolutionary Biology (Matematiksel Evrim), Sirince, Izmir, Turkey (September 9-15, 2013)

Representative of the PhD students at IST-Austria (Fall 2010-Fall 2011)

Teaching Assistant of PHYS 102 General Physics-2, SCIE 109 Physics of Everyday Life, MATH 204 Calculus-2, MATH 101 Discrete Mathematics at Koç University (September 2005 - June 2007)

Tutoring mathematics & physics of high school and university freshman level (September 2006 - November 2007)

**SELECTED**  
**WORKSHOPS,** Winter School on Quantitative Systems Biology at ICTP, Trieste, Italy, 2012  
**SUMMER SCHOOLS,** Trimester on "Statistical Physics, Probability and Combinatorics" at Institute of Henri  
**ETC. ATTENDED** Poincare, Paris, France, 2009  
 Summer School "Second Annual French Complex Systems Summer School" at ISC-PIF,  
 Lyon-Paris, France, 2008  
 Workshop on "Dynamics and Evolution of Biological and Social Networks" at IFISC,  
 Palma de Mallorca, Spain, 2008  
 Summer School on "Statistical Mechanics and Complexity" at Institute of Theoretical  
 and Applied Physics, Turunç-Marmaris, Turkey, 2007

**SCHOLARSHIPS** Turkish Research Council (TUBITAK) scholarship (March 2007 - January 2008)  
 Koç University M.S. scholarship (2005 September - 2007 March)  
 Anadolu Foundation undergraduate scholarship (September 2000 - June 2005)  
 Republic of Turkey Prime Ministry scholarship (September 2000 - June 2005)

**COMPUTER SKILLS** R, Mathematica, MATLAB, L<sup>A</sup>T<sub>E</sub>X, Python, Linux and Apple platforms

**REFERENCES** **Prof. Dr. Nick Barton** (PhD Advisor)  
 IST-Austria, Klosterneuburg, Austria  
 email: Nick.Barton@ist.ac.at, phone: +43-2243-9000-3001  
**Prof. Dr. Gasper Tkacik** (PhD Co-Advisor)  
 IST-Austria, Klosterneuburg, Austria  
 email: Gasper.Tkacik@ist.ac.at, phone: +43-2243-9000-4501  
**Assoc. Prof. Dr. Alkan Kabakçioğlu** (M.S. Advisor in Computational Sciences)  
 Dept. of Physics, Koç University, Sarıyer, Istanbul, Turkey  
 email: akabakcioglu@ku.edu.tr, phone: +90-212-338-1830  
**Prof. Dr. Heinrich Kovar** (Postdoc Supervisor)  
 Children's Cancer Research Institute, Vienna, Austria  
 email: heinrich.kovar@ccri.at , phone: +43-1-40470-4092