Personal information

Name	**Sandeep Krishna**
Address	103 Farah Residency, 234 6th Cross, Defence Colony, Indiranagar, Bangalore 560038, India.
Telephone	+91 80 23666001
Email	sandeep@ncbs.res.in
Nationality	Indian
Date of birth	1st September, 1976

Affiliations

Primary	Simons Centre for the Study of Living Machines, National Centre for Biological Sciences TIFR, Bangalore, India
Additional	Adjunct Associate Professor, Niels Bohr Institute, Copenhagen Adjunct Faculty, International Centre for Theoretical Studies, Bangalore

Employment

Position	Associate Professor; Jul. 2013 – present
Employer	National Centre for Biological Sciences TIFR, Bangalore, India
Position	Reader; Mar. 2010 – Jun. 2013
Employer	National Centre for Biological Sciences TIFR, Bangalore, India
Position	Research Associate Professor (lektor); Sept. 2007 – Aug. 2010
Employer	Niels Bohr Institute, Copenhagen, Denmark
Position	Assistant Professor; Nov. 2004 – Aug. 2007
Employer	Niels Bohr Institute, Copenhagen, Denmark
Position	Postdoc; Aug. 2003 – Aug. 2004
Employer	National Centre for Biological Sciences TIFR, Bangalore, India

Education

Degree awarded	Ph.D.; Jun. 2004
Institution	Indian Institute of Science, Bangalore, India
Awards	Martin Foster medal for best thesis in the Division of Physical Sciences in 2004
Degree awarded	M.S. in Physical Sciences; Oct. 2000; Grade 7.4/8 (rank 1)
Institution	Indian Institute of Science, Bangalore, India
Degree awarded	B.Sc. (Hons) Physics; Jul. 1997; 1st division, 1st rank in university
Institution	St. Stephen's College, University of Delhi, New Delhi, India

Academic Experience

Peer reviewed publications	80 (http://scholar.google.com/citations?user=7XtQF4IAAAAJ&hl=en)
Invited talks	62
Graduated students	18 (7 Ph.D., 4 Masters, 3 Bachelors, 4 1st-year)
Current students	4 (4 Ph.D.)
Postdoc alumni	2
Member of	Board of Reviewing Editors, eLife, 2019.

Grants

2018 and 2019	Chaire Joliot, ESPCI, Paris.
2018 – 2023	USD 1 million for 5 years; Renewal of Simons Foundation grant; co-PI with M. Thattai, M. Rao, S. Gosavi and S. Thutupalli (all NCBS).
2018 – 2021	EUR 140,000 for 3 years from the Indo-French Centre for the Promotion of Advanced Research (CEFIPRA), for project 'Pre-evolutionary processes in autocatalytic RNA networks'; co-PI with Philippe Nghe (ESPCI, Paris) and Sanjay Jain (Delhi Univ.)
2013 – 2018	USD 1 million for 5 years from the Simons Foundation for setting up the 'Simons Centre for the Study of Living Machines' at NCBS; co-PI with M. Thattai, M. Venkadesan, M. Rao and S. Gosavi (all NCBS).
2013 – 2016	INR 8 million from the Department of Biotechnology, Govt. of India, for 3 years for project titled 'Exploring stationary phase genome dynamics in E. coli using next generation sequencing'; co-PI with Aswin Seshasayee (NCBS).
2011 – 2014	DKK 1.5 million ($\approx$ EUR 200,000) for 3 years from the Danish Council for Independent Research, Natural Sciences, for project 'Dynamic features of gene regulatory mechanisms'; co-PI with S. L. Svenningsen (Inst. of Biology, Copenhagen University) and S. Semsey (Center for Models of Life, Niels Bohr Inst., Copenhagen). Publication: see Hansen et al. (2015) on p.6 of this CV.

Current students (at NCBS)

Ph.D.	Vaibhhav Sinha, Akshit Goyal

Current students (at NBI)

Ph.D.	Mathias, Heltberg, Jonas Juul (both jointly with M. H. Jensen)

Graduated students

Ph.D.	Vishaka Datta, 2019. Thesis title: Inferring protein-DNA binding events using CHIP-seq read counts.
	Rohit Suratekar (jointly with R. Padinjat), 2018. Thesis title: Understanding structure and dynamics of the *Drosophila* $PI(4,5)P_2$ cycle using mathematical models.
	Rajalakshmi S. (jointly with Aswin Seshasayee), 2017. Thesis title: Role of H-NS and it's paralogous protein StpA in transcription regulation of E. Coli.
	Lykke Pedersen (jointly with M. H. Jensen), 2012. Thesis title: Biological systems on a small scale.
	Benedicte Mengel (jointly with M. H. Jensen), 2011. Thesis title: Modeling Interaction Patterns at the Level of Proteins, Cells and Humans.
	Alexander Hunziker (jointly with K. Sneppen), 2010. Thesis title: Sense & Sensitivity - Regulation of Genes in Good and Bad Times.
	Mikkel Avlund (jointly with K. Sneppen), 2009. Thesis title: Dynamics of growth – decisions in phages and gene segregation in bacteria.
Masters	Rasmus H. Rasmussen (jointly with J. Ferkinghoff-Borg), 2009. Thesis title: Phase space reduction for biochemical networks. Grade 12/12.
	Jesper Fonslet (jointly with M. H. Jensen and J. Ferkinghoff-Borg), 2009. Thesis title: Amyloid growth kinetics. Grade 10/12.
	Peter B. Jensen (jointly with M. H. Jensen), 2008. Thesis title: Modeling oscillatory gene expressions in Wnt and Notch. Grade: 12/12.
	Benedicte Mengel (jointly with M. H. Jensen), 2007. Thesis title: Modelling genetic regulation in the NF-κB signalling system. Grade 12/12.
Bachelors	Tine Straasø (jointly with M. H. Jensen), 2007. Thesis title: Genetic switches, Grade: 12/12.
	Kristian Rud-Petersen and Jesper Fonslet (jointly with M. H. Jensen), 2006. Thesis title: Pulses and chaos in NF-kB oscillations. Grade: 13/13.

1st year Physics research project	Kamilla Nørregaard, Mette Fløistrup, Jørgen Skancke and Andreas Skielboe, 2006. Thesis title: Modelling the SOS response to DNA damage in E. coli. Grade: 11/13.

Teaching, Mentoring and Organization

2019	Co-organizer (with S. Thutupalli, M. Thattai, M. Rao, S. Gosavi) of Physics of Life, the 7th NCBS-Simons Monsool School for undergraduates at NCBS, Jun 17-26.
	Co-instructor (with S. Laxman and R. Padinjat) for NCBS course ‘Signalling’, Jan semester.
2018	Guest lecturer for the undergraduate course ‘Biophysics’, Azim Premji University, Bangalore, Oct 15.
	Instructor for course ‘Network Dynamics’ at the XIth Bangalore School on Statistical Physics, ICTS, Bangalore, Jun 27 - Jul 13.
	Instructor for NCBS course ‘Advanced Topics in Nonlinear Dynamics’, Jan semester.
2017	Faculty advisor (with U. Ramakrishnan) for NCBS student symposium Sympotein XIII: Geometry and Design - Patterns in Biology, Sep 1.
	Instructor for session on ‘Biological Games’ at Physics of Life, the 5th NCBS-Simons Monsool School for undergraduates at NCBS, Jun 18-25.
	Co-organiser for an international discussion meeting on ‘Emergence and Evolution of Biological Complexity’ at NCBS, Feb 4-6.
2016	Co-organiser for theory group theme meeting on ‘Interface between biology and theoretical computer science’ at NCBS, Dec 19-21.
	Co-organiser for an international discussion meeting on ‘Conflict and Cooperation in Cellular Populations’ at NCBS, Oct 16-19.
2016	Instructor for tutorial session on ‘Game Theory’ at Physics of Life, the 4th NCBS-Simons Monsool School for undergraduates at NCBS, Jun 15-24.
2015	Instructor for pre-school courses for the ICTS-ICTP Advanced Winter School on Quantitative Biology.
	Co-organizer of ICTS-ICTP Advanced Winter School on Quantitative Biology.
	Co-organizer (with A. Seshasayee) of an international conference “Bacterial Expressions II" at NCBS, Dec 1-5.
	Co-organizer (with M. Thattai, M. Rao, S. Gosavi) of Physics of Life, the 3rd NCBS-Simons Monsool School for undergraduates at NCBS, Jun 21-27.
	Guest lecturer for course on “Biophysics" at University of Copenhagen, May 2015.
	Instructor (with A. Seshasayee and A. Ramesh) for NCBS course “Bacterial Expressions", Jan semester.
	Instructor (with S. Laxman and R. Padinjat) for NCBS course “Signalling", Jan semester.
2014	Co-instructor for course on “Topics in Complex Systems" at Niels Bohr Institute, Copenhagen, Fall semester.
	Instructor for course on “Game theory in biology" for the Physics of Life Monsoon School at NCBS, Jun 10-21.
	Co-organizer (with M. Thattai, M. Rao, S. Gosavi) of Physics of Life, the 2nd NCBS Monsool School for undergraduates at NCBS, Jul 21-26.
	Member of selection committee for NCBS Fellows (since 2011).
2013	Co-organizer (with A. Seshasayee and D. Agashe) of an international conference on “Bacterial Expressions" at NCBS, Oct 22-25.
	Guest instructor for NCBS course “Evolution", Aug semester.
	Instructor for the course “Nonlinear dynamics" for the workshop on Nonlinear Dynamics in Biology, IISc, Bangalore, July 8-13.
	Instructor for course on “Game theory in biology" for the Physics of Life Monsoon School at NCBS, Jun 10-21.
	Organizer of the Physics of Life, the 1st NCBS-ICTS Monsoon School at NCBS, Jun 10-21.
	Co-organizer of Control in Biological Systems meeting, Jan 3-5, NCBS, Bangalore.
	Guest instructor for NCBS course “Signalling", Jan semester.

	Co-instructor (with M. Thattai) of NCBS course “Dynamical Systems", Jan semester.
	Member of selection committee for NCBS Fellows (since 2011).
2012	Instructor of NCBS course “Advanced algorithms", January semester.
	Guest instructor for NCBS course “Genome Biology", January semester.
	Guest instructor for NCBS course “Signalling", January semester.
	Supervised summer student Anjali Jaiman (with K. Vijayraghavan) and Nishant Udgaonkar.
	Invited lecturer at the Krogerup summer school on “DNA dynamics and life strategies" at Humlebaek, Denmark.
2011	Co-instructor (with A. Seshasayee) of NCBS course “Algorithms”, August semester.
	Faculty advisor (with M. Venkadesan) for NCBS symposium Sympotein IX: Bioinspired designs.
2009	Invited lecturer for the Paris Interdisciplinary PhD Symposium, ‘Numbers in Living Systems’.
	Instructor (with K. Sneppen) of Masters level course on “Complex systems” at NBI
	Organizer (with S. Pigolotti) of the Wednesday talks and Special lectures for the Biocomplexity group at the Niels Bohr Institute
2008	Instructor (with K. Sneppen) of Masters level course on “Complex systems” at NBI
2007, 2008	Examiner for several Masters and Ph.D. level courses at Copenhagen University and Oslo University
	Organizer (with S. Pigolotti) of the Wednesday talks and Special lectures for the Biocomplexity group at the Niels Bohr Institute
2007	Invited lecturer at a school for Ph.D. students at Holbaek, Denmark
	Invited lecturer at the NATO-ASI winter-school on “Evolution from cellular to social scales”, Geilo, Norway

Invited talks

Jul. 2019	‘Hysteretic oscillations in a well-mixed population of budding yeast’, at the International Workshop on Oscillations, Transients and Fluctuations in Complex Networks (OTFCN), H. C. Oersted Institute, Univ. of Copenhagen, Denmark.
Jun. 2019	‘The chemical basis of metabolic interdependence’, Chaire Joliot seminar, ESPCI, Paris.
Apr. 2019	‘Counting genomes: the lysis-lysogeny decision in temperate bacteriophage’, at the Dept. of Chemical Engineering, IIT Bombay, Mumbai.
Apr. 2019	‘How and why temperate bacteriophage count genomes to make a binary choice between two cell fates’, at the Centre for BioSystems Science and Engineering, Indian Institute of Science, Bangalore.
Mar. 2019	‘Counting genomes to make a binary choice between different cell fates’ at the Kumamoto-NCBS/InStem Workshop, NCBS, Bangalore.
Mar. 2019	‘Cooperation, communication and heterogeneity in microbial populations’ at the IIT Bombay Diamond Jubilee Symposium on Evolutionary Biology, IIT Bombay, Mumbai.
Feb. 2019	‘A theoretical study of conditions that enable the emergence and growth of autocatalytic sets’ at the symposium on Emergence of Life: From Messy Chemistry to Ordered Networks, IISER Pune.
Feb. 2019	‘Optimising dormancy vs. virulence decisions in phage-bacteria ecosystems’ at the 6th Indian Statistical Physics Community meeting, ICTS, Bangalore.
Dec. 2018	‘Spontaneous emergence of heterogeneity in yeast populations ’, International Centre for Theoretical Sciences, Bangalore.
Oct. 2018	‘Benefits of cooperation and communication in bacteria’ at the Azim Premji University, Bangalore.
Sept. 2018	‘Spontaneous emergence of heterogeneity in yeast populations ’, Chaire Joliot seminar, ESPCI, Paris.
Sept. 2018	‘Spontaneous emergence of heterogeneity in yeast populations’, Biocomplexity seminar series, University of Copenhagen.
Apr. 2018	‘Bistability: a building block for cellular decisions’ at the Living Matter Workshop, ICTS, Bangalore.

Feb. 2018	'The chemical basis of metabolic interdependence' at the Les Houches meeting on Evolution of Diversity, Les Houches, France.
Feb. 2018	'Hysteretic oscillations in a well-mixed population of budding yeast' at the 5th Indian Statistical Physics Community meeting, ICTS, Bangalore.
Jul. 2017	'Mechanical interference of transcription by polymerases' at the India iGEM Meetup, at IISER Pune.
Jul. 2017	'Diversity in bacteria-virus ecosystems may be facilitated by restriction-modification systems' at the Dept. of Biology, IISER Pune.
Feb. 2017	'Efficiency of a Stochastic Search with Punctual and Costly Restarts' at the 4th Indian Statistical Physics Community meeting, ICTS, Bangalore.
Aug. 2016	'Effects of Four Different Regulatory Mechanisms on the Dynamics of Gene Regulatory Cascades' at the Aspects of Gene and Cellular Regulation meeting at IMSc Chennai.
Mar. 2016	'Diversity in bacteria-virus ecosystems is facilitated by weak defences against viruses' at the India – Behaviour, Ecology and Evolution Conference, Uttarakhand.
Feb. 2016	'Mode-hopping in entrained biological oscillators' at the 3rd Indian Statistical Physics Community meeting, ICTS, Bangalore.
Feb. 2016	'Diversity in bacteria-virus ecosystems is facilitated by weak defences against viruses', Complex System Approach to Self-Organization meeting at IITM Chennai.
Nov. 2015	'Growth phase dependent regulation of the E. coli RNA polymerase by 6S RNA and Rsd' at the International Conference on Systems Biology, Singapore.
Aug. 2015	'Restriction-modification systems as engines of diversity in bacteria-virus ecosystems' at the Models of Life conference, Krogerup, Denmark.
Jun. 2015	'Oscillations in NFkB, p53 and Wnt' at the Excursions in Complexity meeting, Niels Bohr Institute, Copenhagen.
Apr. 2015	'Counting genomes: the lysis-lysogeny decision in temperate bacteriophage' at the NNMCB meeting on Mathematical Modelling of Biological Systems, Univ. of Kashmir, Srinagar.
Feb. 2015	'Diversity in bacteria-virus ecosystems is facilitated by weak defences against viruses' at the 2nd Indian Statistical Physics Community meeting, Bangalore.
Dec. 2014	'Mechanical interference of transcription by polymerases' at Aspects of Gene Regulation meeting, Institute of Mathematical Sciences, Chennai.
Jun. 2014	'Optimal strategies for viruses competing for a single bacterial resource' at the Staying Alive: Lessons from Phage and Bacteria meeting, Copenhagen.
Feb. 2014	'Models and simulations' at the School and Discussion Meeting on Population Genetics and Evolution at IISc, Bangalore.
Feb. 2014	'Benefits of cooperation and communication in bacteria' at the TIFR Centre for Interdisciplinary Sciences, Hyderabad.
Oct. 2013	'Benefits of cooperation and communication in bacteria' at the 1st NCBS International Conference on Bacterial Expressions, NCBS, Bangalore.
Aug. 2013	'Counting genomes: the lysis-lysogeny decision in temperate bacteriophage' at the Dynamics of Stem Cell Decisions conference, Niels Bohr Institute, Copenhagen.
Aug. 2013	'Benefits of cooperation and communication in bacteria' at The Centre for Ecological Sciences, IISc, Bangalore.
Dec. 2012	'Benefits of cooperation and communication in bacteria' at the Workshop on Dynamics and Regulation of Biomolecular Networks, Institute for Computational and Theoretical Studies, Hong Kong Baptist University.
Oct. 2012	'Benefits of cooperation and communication in bacteria' at JNCASR, Bangalore.
Aug. 2012	'Combining theory and experiments to understand sugar regulation in bacteria' at the Krogerup summer school on "DNA dynamics and life strategies" at Humlebaek, Denmark.
Jul. 2012	'Bacteriophage networks that can count genomes' at the International Conference on Networks in Biology, Social Science and Engineering, Indian Institute of Science, Bangalore.
Jan. 2012	'Sustainability of virulence in a phage-bacteria ecosystem' at the International Conference on Mathematical and Theoretical Biology, Pune.
Dec. 2011	'Combining theory and experiments to understand sugar regulation in bacteria' at an ICTS discussion meeting on Systems Biology/Systems Neuroscience, Bangalore.

Nov. 2011	'Counting genomes: the lysis-lysogeny decision in temperate bacteriophage' at IISER, Pune.
Aug. 2011	'Counting genomes: the lysis-lysogeny decision in temperate phage' at a workshop on Signals and Space: Spatio-temporal patterns in simple bio-systems, at the Niels Bohr Institute, Copenhagen.
Feb. 2011	'Feedback and decision-making in regulatory networks' at a discussion meeting on Computational Biology in India - status and prospects, Orange County, Coorg.
Nov. 2010	'Why do phage play dice?' at the Center for Neural and Cognitive Sciences, University of Hyderabad.
Oct. 2010	'Counting genomes: the lysis-lysogeny decision in phage lambda' at CCMB, Hyderabad.
Sept. 2010	'Modelling SOS response in E. coli' at a workshop on Genome Maintenance and Consequences, at the Niels Bohr Institute, Copenhagen.
May. 2010	'Why do Phage Play Dice?' at the Small Systems Biology conference, Dragoer.
Jan. 2010	'Why do Phage Play Dice?' at Breaking Barriers: from Physics to Biology, NCBS.
Dec. 2009	Invited lecturer for the Paris Interdisciplinary PhD Symposium on Numbers in Living Systems.
Jan. 2009	'Why do Phage Play Dice?' at the Center for Theoretical Biological Physics, UCSD.
Aug. 2008	'Phage-Ecology Modelling' at the Joint Princeton-NBI Mini-workshop, Niels Bohr Institute, Copenhagen, Denmark.
Mar. 2008	'Similarities and differences between the NF-kB and p53 feedback loops' at the Annual American Physical Society meeting, New Orleans, USA.
Dec. 2007	'Counting genomes: the lyis-lysogeny decision in phage lambda' at the Phenotypic and Developmental Plasticity conference, Trivandrum, India.
Nov. 2007	'Similarities and differences in NF-κB and p53' at the NF-κB–p53 Oscillations Workshop, Institute for Advanced Studies, Princeton, USA.
Oct. 2007	'Uptake and usage motifs in bacteria and society' at the Computational Philosophy conference, Niels Bohr Institute, Denmark.
May 2007	'Theoretical models in biophysics' at a school for PhD. students, Holbaek, Denmark.
Apr. 2007	'Evolution of bacteria-phage ecologies' at the NATO-ASI School on Evolution from Cellular to Social Scales, Geilo, Norway.
Dec. 2006	'A model of spiky oscillations in NF-κB signalling' at the 10th Transcription Assembly meeting, Kolkata, India.
Nov. 2006	'Modelling cellular oscillations: the role of negative feedback', Danish Technical University, Kgs. Lyngby, Denmark.
May 2006	'Modelling UV-induced mutagenesis in the E. coli SOS response' at Workshop on Phages: Experiments and Modelling, Dragør, Denmark.
Dec. 2004	'Self-disorganization in models of evolving networks' at Nordic Workshop on Networks, NORDITA, Copenhagen, Denmark.
Dec. 2001	'Self-organisation' at Discussion meeting on Selected Topics in Genetics and Molecular Biology (sponsored by the Indian Academy of Sciences), Orange County, Coorg, India.

Publications

Archived preprints

Husain, K & Krishna, S. (2016) Efficiency of a stochastic search with punctual and costly restarts, **arXiv 1609.03754 [q-bio.QM]**, **https://arxiv.org/abs/1609.03754**

Peer-reviewed journal articles

2019

Juul, J. S., Jensen, M. H. & Krishna, S. (2019) Constraints on somite formation in developing embryos, **J. Royal Soc. Interface 16**, **doi: http://doi.org/10.1098/rsif.2019.0451**

Varahan, S., Sinha, V., Walwekar, A., Krishna, S. & Laxman, S. (2019) Metabolic constraints drive self-organization of specialized cell groups, **eLife 8**, **e46735.**

Heltberg, M., Krishna*, S. & Jensen*, M. H. (2019) On chaotic dynamics in transcription factors and the associated effects in differential gene regulation, **Nat. Commun. 10**, **71 (*Co–corresponding authors).**

2018 Krishna, S & Laxman, S. (2018) A minimal ”push-pull" bistability model explains oscillations between quiescent and proliferative cell states, **Mol. Biol. Cell, 29**, **2243–2258.**

Suratekar, R., Panda, A., Raghu, P. & Krishna, S. (2018) Evidence of sinks and sources in the plc activated pip2 cycle, **FEBS Lett. 592**, **962–972.**

Juul, J., Krishna*, S. & Jensen*, M. H. (2018) Entrainment as a means of controlling phase waves in populations of coupled oscillators, **Phys. Rev. E 98**, **062412 (*Co–corresponding authors).**

Datta, V., Siddharthan, R. & Krishna, S. (2018) Detection of cooperatively bound transcription factor pairs using chip-seq peak intensities and expectation maximization, **PLoS ONE 13**, **e0199771.**

Lal, A., Krishna, S. & Seshasayee, A. S. N. (2018) Regulation of global transcription in e. coli by rsd and 6s rna, **G3 8**, **2079–2089.**

2017 Sinha, V., Goyal, A., Svenningsen, S. L., Semsey, S. & Krishna, S. (2017) In silico evolution of lysis-lysogeny strategies reproduces observed lysogeny propensities in temperate bacteriophages, **Front. Microbiol. 8**, **1386.**

Heltberg, M., Krishna, S. & Jensen, M. H. (2017) Time correlations in mode hopping of coupled oscillators, **J. Stat. Phys. 167**, **792.**

2016 Heltberg, M., Kellogg, R. A., Krishna, S., Tay, S. & Jensen, M. H. (2016) Noise induces hopping between nf-kb entrainment modes, **Cell Sys. 3**, **532.**

2015 Hansen, S., Krishna, S., Semsey, S. & Svenningsen, S. L. (2015) Effects of four different regulatory mechanisms on the dynamics of gene regulatory cascades, **Sci. Rep. 5**, **12186.**

Heilmann, S., Krishna, S. & Kerr, B. (2015) Why do bacteria regulate public goods by quorum sensing?-how the shapes of cost and benefit functions determine the form of optimal regulation, **Front. Microbiol. 6**, **767.**

Bendtsen, K. M., Jensen, M. H., Krishna, S. & Semsey, S. (2015) The role of mrna and protein stability in the function of coupled positive and negative feedback systems in eukaryotic cells, **Sci. Rep. 5**, **13910.**

Sneppen, K., Semsey, S., Seshasayee, A. & Krishna, S. (2015) Restriction modification systems as engines of diversity, **Front. Microbiol. 6**, **528.**

2014 Hao, N., Krishna, S., Ahlgren-Berg, A., Cutts, E. E., Shearwin, K. E. & Dodd, I. B. (2014) Road rules for traffic on dna – systematic analysis of transcriptional roadblocking in vivo, **Nucl. Acids Res. 42**, **8861–8872.**

2013 Sipos, L., Pers, B. M., Kalmar, M., Toth, I., Krishna, S., Jensen, M. H. & Semsey, S. (2013) Comparative network analysis of preterm vs. full-term infant-mother interactions, **PLoS ONE 8**, **e67183.**

Semsey, S., Pedersen, L. J., Csiszovszki, Z., Erdossy, J., Steger, V., Hansen, S. & Krishna, S. (2013) The effect of laci autoregulation on the performance of the lactose utilization system in escherichia coli, **Nucl. Acids Res. 41**, **6381–6390.**

Srinivasan, R., Chandraprakash, D., Krishnamurthi, R., Singh, P., Scolari, V., Krishna, S. & Seshasayee, A. (2013) Genomic analysis reveals a bi-layered epistatic control of “expensive" genes in escherichia coli k-12, **Mol. Biosyst. 9**, **2021–2033.**

Singh, S., Samal, A., Giri, V., Krishna, S., Raghuram, N. & Jain, S. (2013) Flux-based classification of reactions reveals a functional bow-tie organization of complex metabolic networks, **Phys. Rev. E 87**, **052708.**

Semsey, S & Krishna, S. (2013) Combining theory and experiments to understand sugar regulation in bacteria, **Curr. Chem. Biol. 7**, **224–233.**

2012 Heilmann, S., Sneppen, K. & Krishna, S. (2012) A life on the edge: Coexistence of virulent phage and bacteria on the boundary of self-organized refuges, **Proc. Natl. Acad. Sci. (USA) 109**, **12828–12833.**

Mengel, B., Krishna, S., Chakraborty, S., Pigolotti, S., Sekara, V., Semsey, S. & Jensen, M. H. (2012) Effects of growth and mutation on pattern formation in tissues, **PLoS ONE 7**, **e48772**

Seshasayee, A. S. N., Singh, P. & Krishna, S. (2012) Context-dependent conservation of dna methyltransferases in bacteria, **Nucl. Acids. Res. 40**, **7066–7073.**

Chakraborty, S., Jensen, M. H., Krishna, S., Mengel, B., Pigolotti, S., Sekara, V. & Semsey, S. (2012) Limit cycle oscillations and stable patterns in repressor lattices, **Phys. Rev. E 86**, **031905.**

Jensen, M. H & Krishna, S. (2012) Inducing phase-locking and chaos in cellular oscillators by modulating the driving stimuli, **FEBS Lett. 586**, **1664–1668.**

Li, W., Krishna, S., Pigolotti, S., Mitarai, N. & Jensen, M. (2012) Switching between oscillations and homeostasis in competing negative and positive feedback motifs, **J. Theor. Biol. 307**, **205–210.**

2011 Csiszovszki, Z., Krishna, S., Orosz, L., Adhya, S. & Semsey, S. (2011) Structure and function of the d-galactose network in enterobacteria, **mBio 2**, **e00053–11.**

Yde, P., Mengel, B., Jensen, M. H., Krishna, S. & Trusina, A. (2011) Modeling the nf-kb mediated inflammatory response predicts cytokine waves in tissue, **BMC Sys. Biol. 5**, **115.**

Pedersen, L., Jensen, M. H. & Krishna, S. (2011) Dickkopf1 - a new player in modelling the wnt pathway, **PLoS ONE 6**, **e25550.**

Bendtsen, K. M., Erdossy, J., Csiszovszki, Z., Svenningsen, S. L., Sneppen, K., Krishna, S. & Semsey, S. (2011) Direct and indirect effects in the regulation of overlapping promoters, **Nucl. Acids Res. 39**, **6879–6885.**

Mengel, B., Krishna, S., Jensen, M. H. & Trusina, A. (2011) Nested feedback loops in gene regulation, **Physica A 391**, **100–106.**

2010 Horvath, P., Hunziker, A., Erdossy, J., Krishna, S. & Semsey, S. (2010) Timing of gene transcription in the galactose utilization system of escherichia coli, **J. Biol. Chem. 285**, **38062–38068.**

Sneppen, K., Pedersen, S., Krishna, S., Dodd, I. B. & Semsey, S. (2010) Economy of operon formation: Cotranscription minimizes shortfall in protein complexes, **mBio 1**, **e00177–10.**

Mengel, B., Hunziker, A., Pedersen, L., Trusina, A., Jensen, M. H. & Krishna, S. (2010) Modelling oscillatory control in nf-kb, p53 and wnt signalling, **Curr. Opin. Gen. Devel. 20**, **656–664.**

Hunziker, A., Tuboly, C., Horvath, P., Krishna, S. & Semsey, S. (2010) Genetic flexibility of regulatory networks, **Proc. Natl. Acad. Sci. (USA) 107**, **12998–13003.**

Ferkhgingoff-Borg, J., Fonslet, J., Andersen, C. B., Krishna, S., Pigolotti, S., Yogi, H., Goto, Y., Otzen, D. & Jensen, M. H. (2010) Stop-and-go kinetics in amyloid fibrillation, **Phys. Rev. E 82**, **010901(R).**

Hunziker, A., Jensen, M. H. & Krishna, S. (2010) Stress-specific response of the p53-mdm2 feedback loop, **BMC Syst. Biol. 4**, **94.**

Avlund, M., Krishna, S., Semsey, S., Dodd, I. B. & Sneppen, K. (2010) Minimal gene regulatory circuits for a lysis-lysogeny choice in the presence of noise, **PLoS ONE 5**, **e15037.**

Sneppen, K., Krishna, S. & Semsey, S. (2010) Simplified models of biological networks, **Annu. Rev. Biophys. 39**, **43–59.**

Jensen, P. B., Pedersen, L., Krishna, S. & Jensen, M. H. (2010) A wnt oscillator model for somitogenesis, **Biophys. J. 98**, **943–950.**

Heilmann, S., Sneppen, K. & Krishna, S. (2010) Sustainability of virulence in a phage-bacterial ecosystem, **J. Virol. 84**, **3016–3022.**

2009 Jensen, M. H., Pigolotti, S. & Krishna, S. (2009) Genetic oscillation patterns, **Eur. Phys. J. Special Topics 178**, **45–56.**

Avlund, M., Dodd, I., Sneppen, K. & Krishna, S. (2009) Minimal gene regulatory circuits that can count like bacteriophage lambda, **J. Mol. Biol. 394**, **681–693.**

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