

# Curriculum vitae

## Dr. BIVAS MITRA

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Date of Birth: 27<sup>th</sup> November, 1978

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### Current Status:

Postdoctoral Researcher, July 2011 – present

Université catholique de Louvain (UCL)

Louvain-la-Neuve, Belgium.

**Postdoc Advisors:** Julien Hendrickx, Jean-Charles Delvenne, Vincent D. Blondel

### Workplace:

Room# a-114, Bâtiment Euler,

Department of Mathematical Engineering (INMA),

Université catholique de Louvain,

4, Avenue George Lemaître,

Louvain-la-Neuve, B-1348, Belgium.

### Research Interests:

1. Peer-to-Peer networks: Resilience and Emergence
2. Evolutionary Communities in Dynamical Networks
3. Complex networks, Networks modeling, Statistical mechanics
4. Optical networks, Wireless Internet

### Academics:

**Ph.D, Computer Science & Engineering, Indian Institute of Technology, Kharagpur, India (January 2006 – May 2010)**

Thesis: Analyzing the Resilience and Emergence of Superpeer Networks

Advisors: Prof. Niloy Ganguly and Prof. Sujoy Ghose

**M.Tech, Computer Science and Engineering, Indian Institute of Technology, Kharagpur, India, January 2003**

Thesis: Topology Design for WDM Networks

Advisor: Prof. Sujoy Ghose

**B.Tech, Computer Science and Engineering, Haldia Institute of Technology, Vidyasagar University, India, June 2001.**

### Awards and Achievements

1. SAP Labs India Doctoral Fellowship, January 2008-May 2010.
2. National Doctoral Fellowship, January 2007-Dec 2007 (top 50 Ph.D students in India).
3. Institute Research Scholarship, January 2006-Dec 2006.
4. Travel awards from the international conferences like ACM SIGCOMM 2006, ICDCN 2006, HIPC 2007, IEEE P2P 2007, Microsoft TechVista 2008, IEEE IPDPS 2009, ECCS 2009 etc. to present research papers and posters.

5. Certificate of merit and cash awards from Hindustan Fertilizer Corporation Ltd (Govt. of India undertaking), Haldia for qualifying in the WBJEE (1997) and GATE (2001) examinations.

## Experiences

1. Postdoctoral Researcher at CREA-CNRS, Paris, France, May 2010 - June 2011. Primarily involved in ANR (Agence Nationale de la Recherche) funded research project "Webfluence".  
Collaborators: Camille Roth (CAMS-EHESS) and Lionel Tabourier (LIP6, UPMC).  
My research was focused on the "Detection and Analysis of Evolutionary Communities in Dynamical Networks". A major portion of the research has been carried out at Institute of Complex Systems Paris Ile-de-France (ISC-PIF), 57-59 rue Lhomond, Paris.
2. Visiting research scientist at the Institute of Complex Systems Paris Ile-de-France (ISC-PIF) and French National Atomic Energy Commission (CEA), Paris, France, June 2009.  
Collaborator: Fernando Peruani
3. Visiting research scientist at the Center for Information Services and High Performance Computing (ZIH), Technical University, Dresden, Germany, September-October 2006 and September - October 2007.  
Collaborators: Andreas Deutsch, Fernando Peruani
4. Research Scholar, Department of Computer Science & Engineering, Indian Institute of Technology Kharagpur, India, January 2006 - May 2010.  
Advisors: Prof. Niloy Ganguly and Prof. Sujoy Ghose
5. Lecturer, Department of Computer Science & Engineering, Haldia Institute of Technology, Haldia, India, February 2003 - January 2006.
6. Software Engineer, Soffront Software (India) Pvt. Ltd., STP – II, Salt Lake, Kolkata, India, June 2001-July 2001.
7. B.Tech summer internship on Web Technology at Indian Institute of Management, Calcutta, June 2000 - July 2000.

## Presentations & Talks

1. "Resilience to Clustering: Analyzing the Dynamics in Evolving Networks", *Max Planck Institute for Software Systems (MPI-SWS)*, Saarbrucken, Germany, April 2011.
2. "Analyzing the Dynamics of Peer-to-Peer Networks", *IBM India Research Lab*, Bangalore, India, January 2011.
3. "Superpeer Formation Amidst Churn and Rewiring", *ACM PODC 2010*, Zurich, Switzerland, July 2010.(Brief Announcement)
4. "Formal Understanding of the Emergence of Superpeer Networks: A Complex Network Approach", *ICDCN 2010*, Kolkata, January 2010.
5. "Stability Analysis of Superpeer Networks in the Framework of Complex Networks", PhD In Progress Workshop, *ECCS 2009*, University of Warwick, UK, September 2009.

6. "Understanding the Emergence of Superpeer Networks: A Complex Network Approach", Dynamics on and of Complex Networks III, A Satellite Workshop of *ECCS 2009*, University of Warwick, UK, September 2009.
7. "Understanding the Emergence of Stable Peer-to-Peer Networks", TCPP-PhD Forum, *IEEE IPDPS 2009*, Rome, Italy, May 2009.
8. "Understanding the Stability of Peer-to-Peer Networks: A Complex Network Approach", *Microsoft TechVista 2008*, Chennai, India, October 2008. (Poster).
9. "Effect of Dynamicity on Peer to Peer Networks", *HiPC 2007*, Goa, India, Dec 2007.
10. "Percolation in Complex Networks Due to Failure and Attack", *Modeling Cafe*, Center for Information Services and High Performance Computing (ZIH), Technical University, Dresden, Germany, October 2007.
11. "How Stable are Large Superpeer Networks Against Attack?" *IEEE P2P 2007*, Galway, Ireland, Sep 2007.
12. "Developing Analytical Framework to Measure Robustness of Peer to Peer Networks", *ICDCN 2006*, Guwahati, India, Dec 2006.
13. "Growth Models of Complex Networks", *Modeling Cafe*, Center for Information Services and High Performance Computing (ZIH), Technical University, Dresden, Germany, October 2006.
14. "Developing Analytical Framework to Measure Stability of P2P Networks", Poster paper, *ACM SIGCOMM 2006*, Pisa, Italy, Sep 2006.

## Publications

### Under Review

- **Bivas Mitra**, Lionel Tabourier, Camille Roth, "Intrinsically Dynamic Network Communities".
- **Bivas Mitra**, Animesh Srivastava, Fernando Peruani, Sujoy Ghose, Niloy Ganguly, "How does the Nature of Correlated Superpeer Network Change when subjected to Node Dynamics?".
- Sourav Kumar Dandapat, **Bivas Mitra**, Romit Roy Choudhury and Niloy Ganguly, "Smart Association Control in Wireless Mobile Environment Using Max-Flow".

### Selected Publications

1. **Bivas Mitra**, Sujoy Ghose and Niloy Ganguly, "Brief Announcement: Superpeer Formation Amidst Churn and Rewiring", *ACM PODC 2010*, Zurich, Switzerland, July 2010.
2. **Bivas Mitra**, Abhishek Kumar Dubey, Sujoy Ghose, Niloy Ganguly, "How do Superpeer Networks Emerge?", *IEEE INFOCOM 2010*, San Diego, USA, March 2010.
3. **Bivas Mitra**, Niloy Ganguly, Sujoy Ghose and Fernando Peruani., "Generalized Theory for Node Disruption in Finite Size Complex Networks", *Physical Review E*, 78, 2008.
4. **Bivas Mitra**, Fernando Peruani, Sujoy Ghose and Niloy Ganguly. "Analyzing the Vulnerability of Superpeer Networks Against Attack", *ACM CCS*, Alexandria, USA, 2007.

5. **Bivas Mitra**, Sujoy Ghose and Niloy Ganguly, “How Stable are Large Superpeer Networks Against Attack?” *IEEE P2P*, Galway, Ireland, Sep, 2007.
6. **Bivas Mitra**, Fernando Peruani, Sujoy Ghose and Niloy Ganguly, “Brief Announcement: Measuring Robustness of Superpeer Topologies”, *ACM PODC 2007*, Portland, USA.
7. Raja Datta, **Bivas Mitra**, Sujoy Ghose, Indranil Sengupta “An Algorithm for Optimal Assignment of a Wavelength in a Tree Topology and Its Application in WDM Networks” *IEEE Journal on Selected Areas in Communications*, Vol. 22, No. 9, pp 1589 – 1600, Nov. 2004.

#### Other Publications

8. Animesh Srivastava, **Bivas Mitra**, Fernando Peruani, Niloy Ganguly, “Attacks on Correlated Peer-to-Peer Networks: An Analytical Study”, *IEEE SCNC 2011* (in conjunction with *IEEE INFOCOM 2011*), Shanghai, China, April 2011.
9. Sourav Dandapat, **Bivas Mitra**, Romit Roychowdhury, Niloy Ganguly, “Fair Load Balancing in Wireless Mobile Environment Using Max-Flow”, *HiPC 2010*, Goa, India, Dec 2010.
10. **Bivas Mitra**, Abhishek Kumar Dubey, Sujoy Ghose, Niloy Ganguly, “Formal Understanding of the Emergence of Superpeer Networks: A Complex Network Approach”, *ICDCN 2010*, Kolkata, January 2010.
11. **Bivas Mitra**, “Technological Networks”, Edited book volume ‘*Dynamics on and of Complex Networks: Applications to Biology, Computer Science, Economics, and the Social Sciences*’, N. Ganguly, A Deutsch, and A. Mukherjee (eds.) Birkhauser, Springer, Boston, USA, 2009.
12. **Bivas Mitra**, Niloy Ganguly, Sujoy Ghose and Fernando Peruani, “Stability Analysis of Peer-to-Peer Networks Against Churn”, *Pramana : Journal of Physics*, Springer, 71, 2008.
13. **Bivas Mitra**, Sujoy Ghose and Niloy Ganguly, “Effect of Dynamicity on Peer to Peer Networks”, *HiPC 2007*, Goa, India, Dec 2007.
14. Debasis Mandal, Satyajit Nath, **Bivas Mitra**, “Survivable Routing in WDM Weighted Network”, *IEEE COMSWARE 2007*, Bangalore, January, 2007.
15. Hema Swetha Koppula, Kumar Puspesh and **Bivas Mitra**, “Study and Improvement of Robustness of Existing Networks”, *Dynamics On and Of Complex Networks*, A Satellite Workshop of European Conference on Complex Systems, Dresden, Germany, October, 2007.
16. **Bivas Mitra**, Md. Moin Afaque, Sujoy Ghose, Niloy Ganguly, “Developing Analytical Framework to Measure Robustness of Peer to Peer Networks”, *ICDCN 2006*, Guwahati, India, Dec 2006.
17. **Bivas Mitra**, Souvik Bhattacharjee “Worst Case Delay Minimization in WDM Linear and Ring Networks”, *EAIT 2006*, CSI Conference, February 2006, Kolkata.
18. Debasis Mandal, **Bivas Mitra** “Shared Path Protection in DWDM Mesh Networks”, *CIT 2005*, Bhubaneswar, Dec, 2005.
19. **Bivas Mitra**, Satyajit Nath “Design of a Survivable Virtual Topology for DWDM Networks”, *Networks 2005*, CSI Conference, Hyderabad , Feb 2005.

20. Rishik Ghose, Satrajit Kar, **Bivas Mitra** and Sujoy Ghose, “Physical Topology Design For All Optical WDM Networks Under LAMBDA Constraint”, *CODEC 2004*, Kolkata, January, 2004.
21. **Bivas Mitra**, Anup Kumar Mandal “Wavelength Assignment in Optical Line Networks and Its Application in WDM Ring Topology”, *MobiComNet-2004*, Vellore, October 2004.

#### **Posters**

22. Sourav Kumar Dandapat, **Bivas Mitra**, Romit Roychowdhury, Niloy Ganguly, “Fair Bandwidth Allocation in Wireless Network Using Max-Flow”, Poster paper, *ACM SIGCOMM 2010*, New Delhi, India, September 2010.
23. Sourav Kumar Dandapat, **Bivas Mitra**, Niloy Ganguly, “Flexible Load Balancing in Wireless Mobile Environment”, PhD Forum, *ICDCN 2010*, Kolkata, India, January 2010.
24. **Bivas Mitra**, Niloy Ganguly, “Understanding the Emergence of Stable Superpeer Networks”, TCPP-PhD Forum, *IEEE IPDPS*, Rome, Italy, May 2009.
25. **Bivas Mitra**, Md. M. Afaque, Niloy Ganguly. Developing Analytical Framework to Measure Stability of P2P Networks, Poster paper, *ACM SIGCOMM 2006*, Pisa, Italy, September 2006.