

IRG Activity Report

Date of Submission: 24 / 10 /2009

1. IRG code and name of IRG

- 1) IRG code: IRG - 04 - 2005
- 2) Name of IRG: **Scale Free Characteristics of the Traffic Network (SCAFT)**

2. List of research members

- 1) Ashok Kumar GWAL (Head of Research)
Professor, Head of Department
Department of Physics
Barkatullah University, INDIA
Fax: +917552491823
E-mail: ak_gwal@yahoo.co.in
- 2) Bahram MOJARRABI (Representative and Secretary)
Director of Research
Catt Systems
16 Wentworth Ave, Bedford Park, 5042
Bedford Park, Australia 5042, Australia
E-mail: staff@cattsystems.com.au
- 3) Dr. Hussein DIA
Group ITS Leader
Aurecon Group –Asia Pacific
32 Turbot Street
Brisbane, Queensland 4001, Australia
Fax: +61 7 3135 8001
E-mail: DiaH@ap.aurecongroup.com
- 4) Dr. Shourabh BHATTACHARYA
Lecturer
Department of Applied Physics
Madhav Institute of Technology and Science,
Gwalior- 474 005, M.P., India
E-mail: shourabhbhattacharya@gmail.com
- 5) Dr. Bijan Mojarrabi
Director of Company
Brisbane Institute of Advance Learning
Brisbane, Australia
Email: Bijan.mojarrabi@bitech.edu.au

3. Purpose and Mission of IRG

To apply the concepts and methods from the emerging science of complex network and superstatistics to the design and planning of a futuristic globally integrated transportation

system.

4. Achievements of IRG in 2008-2009

1) Paper, report and book: (Title, Authors, Year, Name of journal etc.)

Title: First Passage Time Anisotropy: Upgrading the Criterion for Superstatistical Framework of Social and Transport Network, Authors: Bahram Mojarrabi, Ashok Kumar Gwal, Hussein Dia, Shourabh Bhattacharya, Year 2009, Proceedings of the Eastern Asia Society for Transportation Studies, Vol.7, 2009

Dia, H and Panwai, S (2009). Evaluation of discrete choice and neural network approaches for modelling driver compliance with traffic information. *Transportmetrica Online*. Available from <http://www.informaworld.com/smpp/content~db=all~content=a914135669> [Accessed 03-Nov-2009]

Dia, H. and Panwai, S. (2007). Modelling drivers' compliance and route choice behaviour in response to travel information. Special issue on Modelling and Control of Intelligent Transportation Systems, *Journal of Nonlinear Dynamics*, Volume 49, Number 4, September, 2007 (Springer).

Dia, H and Panwai S. (2008) models of Driver behaviour for supporting vehicle telematics and ITS simulatens, ITS Asia Pacific Forum, Bangkok, Thailand

2) Number of submitted papers to the 2009 EASTS conference: 1

3) Seminar, symposium and special session: (Title, Date, Venue & abstract)

4) Group meeting: (Date, Venue & abstract) email discussion

5) Result of application for the research grants: (Name & result)

6) Promotional activities of your IRG: (Home page, Newsletter, Mailing list etc.)

Intend to start web site under IRGSCAFT.

Will you continue your IRG's activity in next term (after November 2009) ?

[YES / NO] Yes

→ If "YES", please answer the following questions.

5. Future research plan including time frame with the following items:

The focus of our study is

1) To examine the Fourier transformation of the geometrical pattern of first passage time and eigenstructure,

2) To develop methods to measure the finite time scale separation superstatistical effects within transport and social network and

3) To develop the optimized Artificial Neural Network for Humanitarian Hubs

- Possibility to hold seminar and symposium in 2010. (Date & Venue)

We intend to hold a Seminar.

- Special considerations to young researchers

\$2500 Australian dollars grant toward Research in Scale free Traffic and Application of Superstatistics for one Post graduate student studying in any university in ASIA through SACHI FOUNDATION.