



Interregional Cooperation at Scientific Computing in Interdisciplinary Science

*Ways for the staff members to get involved
Benefits for the participants*

Blagoevgrad May 2012



ICoSCIS



Main goals of ICoSCIS

Training network

Knowledge transfer

Specialization

Interdisciplinarity

Interdepartmental cooperation



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Definition of staff

Teaching staff

Technical staff

Post Docs



Ways to get involved

Participation to the courses

1. Concurrent utilization of methods and techniques – Numerical implementation
2. Demonstration of already solved problems
3. Discussion of open challenges

Access

to GRID computing infrastructure and the available computational tools



Ways to get involved

Suggestions

1. Improvement of courses
2. Propose new topics
3. Implementation of courses – procedural aspects



Benefits (I)

High specialization

Knowledge transfer to society – students

Attract students to the respective institutions

Research prospects

Job prospects (mainly for Post Docs)



Benefits (II)

Interdepartmental – inter institutional cooperation

Interdisciplinary research topics

Attachment to greater research networks

Creation of training networks

Opening up of the pathways to European Level Projects



Common disciplines between SWU and AUBG

Mathematics and (Natural) Science

Economics – Business

Computer Science – Information technology

Philology – History – Arts



Some examples (I)

Econophysics

Fractional calculus and continuous-time finance. II: The waiting-time distribution (2000) 287 (3-4), pp. 468-481. Mainardi, F., Raberto, M., Gorenflo, R., Scalas, E. Cited 161 times.

Worldwide spreading of economic crisis (2010) 12, art. no. 113043, Garas, A., Argyrakis, P., Rozenblat, C., Tomassini, M., Havlin, S. . Cited 4 times.

Biology

Long-range correlation properties of coding and noncoding DNA sequences: GenBank analysis (1995) 51 (5), pp. 5084-5091. Buldyrev, S.V., Goldberger, A.L., Havlin, S., Mantegna, R.N., Malsa, M.E., Peng, C.-K., Simons, M., Stanley, H.E. Cited 325 times.

A reappraisal of drug release laws using Monte Carlo simulations: The prevalence of the Weibull function (2003) 20 (7), pp. 988-995. Kosmidis, K., Argyrakis, P., Macheras, P. Cited 52 times.



Some examples (II)

Language

Language evolution and population dynamics in a system of two interacting species (2005) 353 (1-4), pp. 595-612. Kosmidis, K., Halley, J.M., Argyrakis, P. Cited 33 times.

Network theory – interdisciplinary approach

Epidemic spreading in scale-free networks (2001) 86 (14), pp. 3200-3203. Pastor-Satorras, R., Vespignani, A. Cited 1288 times.

Improving immunization strategies (2007) 75 (4), art. no. 045104, Gallos, L.K., Liljeros, F., Argyrakis, P., Bunde, A., Havlin, S. . Cited 21 times.

Society

Maps of random walks on complex networks reveal community structure (2008) 105 (4), pp. 1118-1123. Rosvall, M., Bergstrom, C.T. Cited 172 times.



Some examples (III)

Nature and society

Uncovering the overlapping community structure of complex networks in nature and society (2005) 435 (7043), pp. 814-818. Palla, G., Derényi, I., Farkas, I., Vicsek, T. Cited 869 times.

Computer Science

Priority diffusion model in lattices and complex networks (2008) 77 (2), art. no. 020103, Maragakis, M., Carmi, S., Ben-Avraham, D., Havlin, S., Argyrakis, P. . Cited 3 times.

Music

Music walk, fractal geometry in music (2007) 380 (1-2), pp. 418-428. Su, Z.-Y., Wu, T. Cited 9 times.

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INVESTING IN OUR FUTURE

QUESTIONS