



# Interregional Cooperation at Scientific Computing in Interdisciplinary Science

Ways for the <u>staff members</u> to get involved <u>Benefits</u> for the participants

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This Project is co-funded by the European Union (ERDF) and Stational Funds of Greece and Bulgaria









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

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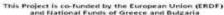




### Ways to get involved

### **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

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### Common disciplines between **SWU** and **AUBG**

Mathematics and (Natural) Science

Economics – Business

Computer Science – Information technology

Philology – History – Arts

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### Some examples (I)

#### **Econophysics**

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

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

#### **Biology**

<u>Long-range correlation properties of coding and noncoding DNA sequences: GenBank analysis</u> (1995) 51 (5), pp. 5084-5091. Buldyrev, S.V., Goldberger, A.L., Havlin, S., Mantegna, R.N., Matsa, 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.

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### Some examples (II)

#### Language

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

#### Network theory – interdisciplinary approach

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

<u>Improving immunization strategies</u> (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.







#### **Nature and society**

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

#### **Computer Science**

<u>Priority diffusion model in lattices and complex networks</u> (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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## QUESTIONS