Visiting professor Paola Festa gives the seminar "Metaheuristics and approximation algorithms in computer networks"

Date: Monday, 16. July 2012

Room C6-E101, from Monday 16th to Friday 20th, from 10:30-12:30h.

Seminar title: Metaheuristics and approximation algorithms in computer networks.

Brief Summary

This course identifies topics that are both fundamental to computer networks and relevant to the design of the Internet of the future. The emphasis is always on insights that will be useful to the graduate student, whether he/she goes on for a PhD or joins a telecom company. The course will cover advanced metaheuristics topics related to the most studied approaches such as genetic algorithms, simulated annealing, tabu search, variable neighborhood search, greedy randomized adaptive search procedures (GRASP), path relinking, and scatter search. Comparison of the performance of metaheuristic vs. exact methods will allow students to understand when and why use approximate algorithms, whereas metaheuristics comparison will allow to understand why some metaheuristic perform better for some problems. Finally, advanced techniques and/or parameter tuning will be considered. Implementation issues will be discussed, illustrating how parallelism can be exploited. Special attention will be devoted to hard combinatorial optimization problems arising in computer networks.

Paola Festa

P. Festa obtained her Ph.D. degree in Operations Research in 2000. She is currently Associate Professor in Operations Research at the University of Napoli FEDERICO II, where since 2002 she has been teaching Operations Research (undergraduate degree) and Combinatorial Optimization (Master degree). She is in the scientific committee of the Ph.D. Program in Operations Research (University of Calabria) and of the Ph.D. Program in Computational Biology and Bioinformatics (University of Napoli FEDERICO II). Since 1999 she has been frequently Research Scholar at several national and international research institutes, including MIT Lab. for Information and Decision Systems (USA), AT&T Labs Research (USA), and Department of Industrial and Systems Engineering, University of Florida (USA). Her research spans several fields, including network optimization, shortest paths, hard combinatorial optimization, and computational biology. She is referee for several international journals, including Computers & Operations Research, Discrete Optimization, Discrete Mathematics, Optimization and Engineering, Global Optimization, Optimization Methods & Software, and Journal of Heuristics. She is author/coauthor of more than 60 publications appeared in international journals, books, and peer-reviewed conference proceedings.