People

**Faculty**

Staff

Students

## Dorit S. Hochbaum

Professor

Ph.D. University of Pennsylvania, Wharton School, 1979

Mathematical Programming

4181 Etcheverry Hall

(510) 642-4998

E-mail: hochbaum@ieor.berkeley.edu

Personal Webpage:
http://www.ieor.berkeley.edu/~hochbaum

"I like to take two approaches to finding the 'best method' for solving a problem. One tries to devise an efficient algorithm for the problem, and the other tries to establish limits on the efficiency of the algorithm."

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Dorit S. Hochbaum is a full professor at UC Berkeley. She is a professor of Business Administration and of Industrial Engineering and Operations Research (IEOR). Professor Hochbaum holds a Ph.D from the Wharton school of Business at the University of Pennsylvania. Prior to joining UC Berkeley in 1981, Profeesor Hochbaum held a faculty position at Carnegie Mellon university's GSIA. Her research interests are in areas of supply chain management, efficient utilization of resources, computer algorithms and discrete optimization. She did work on locations of plants and bank accounts; on movement of robots; on routing and distribution problems; on feasibility of VLSI designs; on distribution of data bases on computer networks; on clustering problems and on layout and scheduling problems among others. She has contributed to the analysis of heuristics and approximation algorithms in the worst case, and on the average, and to the

complexity analysis of algorithms in general, and nonlinear optimization algorithms in particular. Her recent applications work is on problems related to the semiconductor industry in layout, scheduling and testing, in production planning and supply chain streamlining for high tech industries and in logistics and planning problems in various industries. Recent theoretical work focuses on particularly efficient techniques for network flow related problems and inverse problems.

Professor Hochbaum served as the chair of the Manufacturing and Information Technology group at the Haas School of Business. She is the founder and director of the UC Berkeley Supply Chain Initiative. She is the founder and co-director of the RIOT project.

Professor Hochbaum is the author of over 90 papers that appeared in the Operations Research, Management Science and Theoretical Computer Science literature. She serves as department editor for Management Science department of Optimization and Modelling and on the editorial board of Networks. She served in the past on the editorial boards of Operations Research and Operations Research Letters.

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Research

- Devising Efficient Algorithms for Optimization Problems in the Contex of Manufacturing and Management
- The Complexity of Nonlinear Optimization Problems
- Network Clustering and Partitiioning
- Network Flow Techniques
- Supply Chain Management

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Publications

- "Approximation Algorithms for NP-Hard Problems," *PWS Boston*, 1997
- "A New and Fast Approach to Very Large Scale Integrated Sequential Circuits Test Generation" (with Jennifer Adams), *Operations Research*, 1997
- "Algorithms and Heuristics for Scheduling Semiconductor Burn-In Operations" (with D. Landy), *Operations Research*, 1997
- "Tight Bounds and 2-Approximation Algorithms for

Integer Programs with Two Variables Per Inequality" (with N. Megiddo, J. Naor and A. Tamir), *Mathematical Programming,* 1993
- "Polynomial Algorithms for Convex Network Optimization," Network Optimization Problems:*Algorithms, Complexity and Applications,* 1993
- "Lower and Upper Bounds for the Allocation Problem and Other Nonlinear Optimization Problems,"*Mathematics of Operations Research,* 1994

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Ph.D. Theses Supervised

- "Lagrangian Relaxation Methods for Testing Infeasibility in Certain VLSIRouting Problems," Thomas Feo
- "Deterministic and Probabilistic Aspects of the K-cut Problem," OlivierGoldschmidt
- "On the Complexity of Convex Quadratic Programming," Sung-Pil Hong
- "Batch scheduling for manufacturing," Dan Landy
- "Algorithms and complexity for cuts and selection problems on graphs," Anu Pathria