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Christos was born in 1973 in Athens, Greece. He obtained his Diploma in Chemical Engineering at the National Technical University of Athens in 1996. Next, he moved to the London School of Economics (London, UK), where he received an MSc in Operations Research in 1997. After completing his military service in 1999, he went to Carnegie Mellon University where he started his doctoral studies under the supervision of Professor Ignacio Grossmann. In the fall of 2004 he joined the faculty of the Department of Chemical and Biological Engineering at the University of Wisconsin as an assistant professor. He is a recipient of the Inaugural Olaf A. Hougen Fellowship (University of Wisconsin), an NSF CAREER award, as well as the 2008 W. David Smith Jr. Award from the CAST division of ACIChE. Christos’ research interests are in the areas of a) production planning and scheduling, b) stochastic programming for research and development pipeline management, and c) process synthesis.

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“Integration of Production Planning and Scheduling in the Chemical Industry”

To remain competitive in today’s environment, chemical companies must adopt an integrated view across all their operations and use advanced planning methods to achieve enterprise-wide optimality. At the production level, it is necessary to simultaneously consider medium-term (planning) and short-term (scheduling) decisions. Despite recent advances in computer hardware and optimization software, current methods are insufficient to address real-world instances of this integrated problem.

We will discuss three novel approaches. First, a novel formulation for the “generalized” lot-sizing problem is presented. This formulation accounts for process characteristics that are common in the chemical industry but are not addressed by existing approaches. Second, a number of theoretical results are developed enabling us to formulate problems that can be solved effectively. Third, we present how detailed scheduling methods can be used off-line to obtain reduced yet accurate models that can be readily integrated with production planning formulations. Finally, we discuss how these methods can be used to address large-scale integrated planning-scheduling problems.