

PH.D. PROGRAM IN EMPOWERMENT INFORMATICS THE 5TH MEETING OF EMP COLLOQUIUM SERIES

DATE
& TIME

OCTOBER 31, 2016 10:00 - 12:00

VENUE

3B213 PRESENTATION ROOM,
DAI-SAN AREA, UNIVERSITY OF TSUKUBA

SHAPE MODELING AND INTERROGATION



PRESENTER

Dr. Nicholas M. Patrikalakis

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▶ ABSTRACT

In this talk we present a unifying conceptual framework for a variety of shape interrogation (or shape processing) problems, recasting such problems as solutions of nonlinear polynomial systems. We then connect subdivision and interval methods for effective solution of the resulting systems. We then address some shape similarity problems focusing on how the preceding methods as well as differential geometry techniques assist in the solution of such problems. We conclude with open problems relating to shape and physical modeling and interrogation in computer-aided design and manufacturing including inverse problems for materially heterogeneous objects as well as objects with complex internal structure that are specifically designed for challenging applications.