

Isogeometric Analysis

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Abstract

The vision of *Isogeometric Analysis* was first presented in a paper published October 1, 2005 [1]. Since then it has become a focus of research within both the fields of Finite Element Analysis (FEA) and Computer Aided Design (CAD) and is rapidly becoming a mainstream analysis methodology and a new paradigm for geometric design [2]. The key concept utilized in the technical approach is the development of a new paradigm for FEA, based on rich geometric descriptions originating in CAD, resulting in a single geometric model that serves as a basis for both design and analysis.

In this overview lecture I will describe some areas in which progress has been made in developing improved Computational Mechanics methodologies to efficiently solve problems that have been at the very least difficult, if not impossible, within traditional FEA. I will also describe current areas of intense activity and areas where problems remain open, representing both challenges and opportunities for future research (see, e.g., [3,4]).

Key Words: *Computational Mechanics, Computer Aided Design, Finite Element Analysis, Computer Aided Engineering*

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