DEPARTMENT OF MECHANICAL ENGINEERING
Purdue School of Engineering and Technology

SPRING 2006 SEMINAR SERIES

Date: Thursday, Feb. 9
Time: 11:00 am - 12:00 pm
Room: SL 165

Reception at 10:45 am (cookies and refreshments served)
Everyone is invited

Fixed-Grids Methods for Moving Bodies in CFD (Computational Fluid Dynamics)

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Abstract. An overview of existing fixed-grids methods and an alternative approach currently under development in CFD lab IUPUI will be presented for bodies in relative motions in computational fluid dynamic problems. Fixed-grids methods are also known as Overset (Chimera) Grid Methods. This approach is used in flow simulation for mechanical, aerospace, chemical, and biomedical engineering problems. It is more convenient for large movements of bodies compared to deforming grid methods, where single mesh is used to define the flow domain including all moving bodies. In CFD lab, we have been developing another approach which will reduce some of the intermediate steps in the Overset Grid Methods. It is called the Grid Stitching Method. In this seminar, some details and results of this study will be presented.

About the Speaker. Dr. Erdal Yilmaz graduated from the Middle East Technical University (Ankara/Turkey) with a Bachelor of Science degree in Aeronautical Engineering in January 1990. He received his Master of Science degree from the same department in 1994 and Doctorate of Philosophy in January 2000. He worked in different institutes (defense and information technology related) of the Scientific and Technical Research Council of Turkey, (TÜBITAK) from 1990-1999 as development engineer, project engineer and design engineer. He was given assignment by the Undersecretariat of Defense Industry (SSM), the National Ministry of Defense of Turkey, for job training on the aerodynamic design of aircrafts for about a year at CASA, which is an aerospace company in Spain, in 1993. He received another job training on helicopter performance, dynamics and acoustics analysis at Sikorsky Aircraft Company, USA, for a year by a grant from SSM in 1997. He was also granted scholarship by TÜBİTAK for PhD thesis research for 5 months at IUPUI in Indianapolis, IN, USA, in 1999. Since then, he has been working in CFD Laboratory in Purdue School of Engineering and Technology in IUPUI as post doctorate researcher. His areas of interest is parallel computing, developing CFD algorithms, finite volume methods, unstructured grid adaptation, Lattice Boltzmann Method, and CFD applications of aerospace and mechanical engineering fields. He also received his MBA (Master of Business Administration) from Kelley School of Business at Indiana University in June, 2003.