

Applying Corba technology to solve a magnetostriction problem

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Abstract

This paper deals with computational considerations in numerical simulation of multi-physics problems. Modeling and the simulation of systems involving multi-physical phenomena are complex, and cannot be obtained by only one computation software or only one class of physical or mathematical models. When the coupling is weak, one can then think of associating several dedicated codes. These codes will be encapsulated and regarded each one as independent object. They will exchange data and shared methods via the software bus of CORBA (Common Object Request Broker Architecture) in the form of client/server applications. The example is a case of a multi-physical phenomenon which can be found in some electric power devices and some Micro-Electro-Mechanical Systems (MEMS): the magnetostriction effect. To illustrate this concept, a FORTRAN finite element mechanical code and a C++ finite element magnetic code are associated using this computational approach.

Topic area : A5 Coupled Problems