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Radial basis function approach to modeling dynamical systems. DIETMAR REMPFER, PARITOSH MOKHASI, IIT, Chicago — We are interested in developing dynamical systems models that are based on discrete multivariate time series information only, with application to fluid flow phenomena. A method that uses radial basis functions and linear multi-step methods is developed to construct continuous nonlinear models that approximate the original dynamical system. Information, such as the structure of the original system, is incorporated into the models through weak constraints. The formulation of the model and its advantages associated with modeling are described. Different examples are presented that highlight the various characteristics of the model and its effectiveness in dealing with various problems encountered in fluid flow.

Prefer Oral Session
 Prefer Poster Session

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