

CONTENTS

Part 1. Test Cases Specifications.....	1
Part 2. Experimental Results.....	31
Experimental Flow Study of the GAMM Turbine Model <i>F. Avellan, P. Dupont, M. Farhat, B. Gindroz, P. Henry, M. Hussain, E. Parkinson and O. Santal</i>	33
Normalization of Flow Profile Data Measured at Runner Inlet <i>T. Kubota</i>	55
Part 3. Numerical Flow Simulations	63
A 3D Euler Solution of Francis Runner Using Pseudo-Compressibility <i>C. Arakawa, M. Samejima, T. Kubota and R. Suzuki</i>	65
Numerical Inviscid Flow Analysis of the GAMM Francis Runner <i>J.T. Billdal, Ø. Jacobsen, K. Bratsberg, H.I. Andersson and H. Brekke</i>	71
Euler Simulations of Flow in a Francis Distributor and Runner <i>A. Bottaro, A. Drotz, P. Gamba, G. Sottas and C. Neury</i>	77
Numerical Solution of the Incompressible Euler Equations in a Water Turbine Using a Multi-Block Approach <i>P. Eliasson</i>	85
A Stacking Technique for Multistage 3D Flow Computation in Hydraulic Turbomachinery <i>E. Goede</i>	93
3D Euler Computation of the Flow inside the GAMM Francis Runner <i>I. Grimbert, A. Verry and E.M. El Ghazzani</i>	101
3D N-S FEM Flow Analysis in Draft Tube <i>T. Kubota, K. Toshigami and R. Suzuki</i>	109
Computation of 3D Flow Field in a Draft Tube <i>B. Lazzaro and P. Riva</i>	113
3D-Euler Flow Analysis of Runner and Draft Tube of the GAMM Turbine <i>C. Liess and A. Ecer</i>	119
A Potential Prediction of Three-Dimensional Incompressible Flows through Turbomachinery Blade Rows <i>N. Lymberopoulos, K. Giannakoglou, P. Chaviaropoulos and K.D. Papailiou</i>	127
3D Flow Analysis in the Runner and the Distributor of Francis Turbines <i>T. Nagafuji, T. Suzuki, T. Kobayashi and N. Taniguchi</i>	135
Calculation of the Draft Tube Geometry Using the Finite-Element-Code FENFLOSS <i>A. Ruprecht</i>	143

Three-Dimensional Turbulent Flow Analysis for a Hydraulic Turbine Draft Tube by the Finite Element Method <i>T. Takagi, S. Tanabe, M. Ikegawa, H. Mukai and J. Sato</i>	149
3D Viscous Flow Analyses for the GAMM Workshop Draft Tube and Francis Runner <i>T.C. Vu and W. Shyy</i>	155
Part 4. Synthesis	163
Critical Evaluation and Comparison of Contributed Solutions <i>I.L. Ryhming, G. Sottas and A. Bottaro</i>	165
List of Participants	225