

Report on research collaboration

between

Dr. Shuvam Sen, Department of Mathematical Sciences, Tezpur University

and

Guillaume De Nayer and Michael Breuer

Professur für Strömungsmechanik, Helmut-Schmidt Universität Hamburg, D-22043 Hamburg, Germany

Title of collaboration:

A fast and robust hybrid method for block-structured mesh deformation with emphasis on FSI-LES applications

Summary of collaboration:

A collaborative research work was undertaken by Dr. Shuvam Sen with Dr. Guillaume De Nayer and Dr. Michael Breuer with the aim to develop new methodology for mesh deformation. The initial phase of collaboration was done at Helmut-Schmidt Universität Hamburg, Germany during the visit of Dr. Shuvam Sen from August 2015 to November 2015 under INSA-DFG international exchange program. The collaboration continued in online mode once Dr. Sen returned to India and lead to the development of a hybrid methodology for fast deformation of mesh with potential application to FSI-LES study. Expertise and computational resources from both the ends were put together to come up with detailed analysis along with computational evidence towards establishment of the new methodology.

Duration of collaboration:

The collaboration started in the month **April, 2015** and culminated in the form of a published research paper in the month of **November, 2016**.

Details of collaboration:

Details of collaboration could be found in the article-

A fast and robust hybrid method for block-structured mesh deformation with emphasis on FSI-LES applications, International Journal for Numerical Methods in Engineering, vol. 111, p. 273-300, **2017**.

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