

# 7th International Multidisciplinary Conference on Current Research Trends-2023

7th IMCCRT 6th & 7th January 2023



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Technologies Pvt.

**7<sup>th</sup> Virtual International Multidisciplinary Conference on Current  
Research Trends**

**-2023 (IMCCRT-2023 6<sup>th</sup> and 7<sup>th</sup> January 2023**

# **PROCEEDING BOOK**

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**ISBN: 978-81-961093-4-9**

**Publication Date: 2023**

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# Computational Fluid Dynamics in Lid-Driven Cavity Filled With Non-Newtonian Fluids

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**ABSTRACT:** Lid-driven cavity flow has been used for benchmarking systems. It is widely used to validate numerical methods. Lid-driven cavity flow is famous since 1960s, because it is simple to use with three boundary conditions. It has been widely experimented along various ranges of Reynolds' number. Though, the concept of using lid driven cavity to validate non-Newtonian fluid flows is new. This paper is attempting to make an exclusive review on studies of lid driven cavity flows working with both shear thickening ( $n > 1$ ) and shear thinning fluids ( $n < 1$ ). Several schemes are available to solve Navier-Stokes equation in Computational Fluid Dynamics (CFD) with different models to predict the flow of rheological fluids like power law viscosity model, Casson model, Carreau model etc. Studies made with modified geometries, variable Reynolds' number and wide ranges of flow behaviour index ( $n$ ) has been reported exclusively in this paper.

**KEYWORDS:** Non-Newtonian Fluids; Internal Flow; Lid-Driven Cavity Flow; Numerical Method; CFD.