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Model and model parameters ""; ""4.4.3. Applying the model to predict the basic fluidodynamics parameters of the vertical liquid -solids flow ""; ""4.4.3.1. Prediction solids flowrate in the transport tube ""; ""4.4.3.2. Prediction pressure gradient in the transport tube ""; ""4.4.3.3. Indirect determination of solids-wall friction coefficient "" ""4.5. Comparison of a Vertical Gas-Solid and Liquid-Solid Flow"" "" CONCLUSION ""; ""NOMENCLATURE ""; ""Greek Letters ""; ""ACKNOWLEDGMENTS ""; ""REFERENCES ""; ""NUMERICAL SIMULATION ON FLOWS PAST POROUS BLUFF BODIES ""; ""ABSTRACT ""; ""1. INTRODUCTION ""; ""2. NUMERICAL METHOD ""; ""2.1. Governing Equations ""; ""2.2. Numerical Techniques for Fluid-Porous Interface ""; ""2.3. Grid Independent Study and Validations ""; ""3. RESULTS AND DISCUSSION ""; ""3.1. Flow Pattern ""; ""3.2. Occurrence of Recirculating Wake ""; ""3.3. Geometrical Parameters of Recirculating Wake ""; ""CONCLUSION "" ""REFERENCES "" ""FLUID FLOW AND HEAT TRANSPORT: THEORY, NUMERICAL MODELING AND APPLICATIONS FOR THE FORMATION OF MINERAL DEPOSITS ""; ""SUMMARY ""; ""1. THEORY""; ""1.1. Physical Processes""; ""1.1.1. Heat transport ""; ""1. Heat conduction ""; ""2. Heat convection ""; ""3. Thermal radiation ""; ""1.1.2. Fluid flow and driving forces""; ""1. Topography""; ""2. Buoyancy ""; ""3. Tectonic deformation ""; ""4. Sediment compaction ""; ""1.2. Governing Equations ""; ""1.2.1. The equation of fluid motion ""; ""1.2.2. The Equation of fluid mass "" ""1.2.3. The equation of thermal energy conservation ""

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