

## Measurements of dispersion in porous media by NMR technique

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This work focuses on dispersion coefficient measurements by NMR. Our aim is to obtain reliable results with good precision. For this, the measurements were performed with an MRI equipment producing a static magnetic field of 2.35 T (proton resonance at 100 MHz). A double-PGSTE sequence (Pulsed Gradient STimulated Echo) with an appropriate phase cycling was used to measure the dispersion coefficient. We have validated this methodological choice by studying Taylor dispersion in small capillaries for the Poiseuille flow by varying the flow rate. The dispersion coefficients obtained by NMR were in good agreement with those calculated from Taylor-Aris theory. Therefore, the study could be extended to the more complex and challenging case: the dispersion in saturated porous media. We have developed a model porous medium with polymer small beads (about 0.5 mm in diameter) in which circulates a water flow. The longitudinal and transversal dispersion coefficients were measured and compared with coefficients from literature.