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Suspension microstructure in a microporous flow THARANGA PERERA, JAMES GILCHRIST, Lehigh University, LEHIGH UNIVERSITY COLLABORATION — Suspension flows in porous networks are common in applications such as filtration, oil and extraction processes and in biological systems. Knowing the microstructure in such systems can shed light to the understanding of the underlying physical mechanisms as well as the rheological behavior in such flows. An experimental technique based on Confocal laser scanning microscopy was utilized to determine the microstructure of near-hard-sphere microparticle suspensions based on experimentally obtained 3D particle positions. Previous investigations on suspension structure show results of simulation-like quality produced by this technique. This work outlines how the microstructure of a colloidal suspension evolves as it flows around a post in a well-structured micro-porous medium. The formation of strings under shear closer the post as well as ordering due to wall effects are noticed.

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