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Modelling the extrusion of preforms for microstructured optical fibres HAYDEN TRONNOLONE, YVONNE STOKES, University of Adelaide, DARREN CROWDY, Imperial College London — Owing to a novel design, microstructured optical fibres (MOFs) promise the realisation of fibres with effectively any desired optical properties. MOFs are typically constructed from glass and employ a series of air channels aligned along the fibre axis to form a waveguide. The construction of MOFs by first extruding a preform and then drawing this into the final fibre has the potential to produce fibres on an industrial scale; however, this is hindered by a limited understanding of the fluid flow that arises during this process. We focus on the extrusion stage of fabrication and discuss a model of the fibre evolution based upon complex-variable techniques. The relative influence of the various physical processes involved is discussed, along with limitations of the model.

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