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*A source reconstruction algorithm for the Stokes system from local and missing velocity measurements*

We consider the inverse problem of determining the spatial dependence of a source in the Stokes system of the form  $f(x)\sigma(t)$  defined in  $\Omega \times (0, T)$ , assuming that  $\sigma(t)$  is known and  $f(x)$  is divergence free. The only available observations are single internal measurements of the velocity, in which one of its components is missing. Under some hypothesis on  $\sigma$  we prove uniqueness of this inverse problem via some explicit reconstruction formula. This formula provides the spectral coefficients  $f_k$  of the source  $f$  in terms of a family of null controls  $h^{(\tau)}$  for the corresponding dual system indexed by  $\tau \in (0, T]$ . We perform numerical simulations in order to illustrate the feasibility, accuracy and stability of the proposed reconstruction formula.