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Dan Margalit* (margalit@math.gatech.edu), **Balazs Strenner** and **S. Öykü Yurttas**
(oykuyurttas@googlemail.com). *Fast Nielsen–Thurston Classification.*

We consider two algorithmic questions concerning the mapping class group. The first is the Nielsen-Thurston classification problem: given a mapping class, determine if it is periodic, reducible, or pseudo-Anosov (and if it is periodic find the order, if it is reducible find the reducing curves, and if it is pseudo-Anosov find the stable and unstable laminations and the stretch factor). The second problem is the conjugacy problem (or even more: the conjugacy search problem). We show that both problems have polynomial time solutions. (Received September 16, 2016)