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Mihaela Cristina Drignei* (mdrignei@allegheny.edu), Mathematics Department, Allegheny College, Meadville, PA 16335. *An inverse Sturm-Liouville problem using three spectra*. Preliminary report.

We investigate the numerical constructibility of the classical solution to the inverse Sturm-Liouville problem using three Dirichlet spectra. This inverse spectral problem corresponds to the practical situation of recovering the density of an elastic string from its three sets of frequencies of oscillation: the first set corresponds to the vibration of the entire string when the end points are fixed; the second and third sets correspond respectively to the independent vibration of the left and right parts of the string when, in addition to the end points, an interior node of the string is fixed. (Received August 29, 2009)