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Simina Branzei* (simina.branzei@gmail.com), Strada Prieteniei, Nr 74, Bacau, Romania, and **Tomasz Michalak, Talal Rahwan, Kate Larson** and **Nicholas Jennings**. *Matching Problems with Compact Externalities: A Stability Analysis*. Preliminary report.

Two-sided matchings are an important theoretical tool used to model markets and social interactions. In many real life problems the utility of a player is influenced not only by their own choices, but also by the choices that other players make. Such an influence is called an externality. Whereas fully expressive representations of externalities in matchings require exponential space, in this paper we propose the first compact model of externalities, in which the influence of a match on each player is computed additively. In this framework, we define a general stability concept that takes into account externalities. Then we focus on several instantiations of this stability concept in the context of many-to-many and one-to-one matchings under neutral, optimistic, and pessimistic behaviour, and provide both computational hardness results and polynomial-time algorithms for computing stable outcomes. (Received August 18, 2011)