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Daisuke Naimen* (naimen@mmm.muroran-it.ac.jp). *Existence and multiplicity of positive solutions of a critical Kirchhoff type elliptic problem in dimension four.*

We prove the existence of solutions to a Kirchhoff type elliptic problem involving Sobolev critical exponent in dimension four. Our tool is the variational method and the concentration compactness analysis on Palais-Smale sequences. Due to the presence of the Kirchhoff type nonlocal term, it is difficult to ensure the boundedness of Palais-Smale sequences constructed by the mountain pass lemma. To avoid this difficulty, we utilize the method of the Nehari manifold. This approach enables us to obtain possibly multiple positive solutions of the problem. This talk is based on a joint work with M. Shibata at Tokyo Institute of Technology. (Received January 29, 2019)