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The Segal conjecture in homotopical group theory. Preliminary report.

For a finite p-group P and a finite group G, the Segal conjecture implies a description, due to Lewis–May–McClure, of the spectrum of stable maps from BP to the p-completion of BG as a wedge sum of suspension spectra. In unpublished work, Lannes showed that when P has order p, one can replace BG with a space X that shares some homotopy characteristics with the classifying space of a finite group, and obtain a similar description. We will discuss this work and show how, using iterated homotopy fixed points, one can obtain a description of the spectrum of stable maps from BP to X for a general finite p-group P. The allowable spaces X in this setting include p-compact groups and p-local finite groups, and thus we obtain a version of the Segal conjecture for those spaces. (Received September 21, 2011)