1135-68-1505 **Guillaume Brunerie*** (`guillaume.brunerie@gmail.com`), 1 Einstein Drive, Princeton, NJ 08540. *Experiments in cubical type theory.* Preliminary report.

I will present the work of the "Cubical experiments" group during the MRC. The goal of this group was to develop some proofs and programs in cubical type theory (in particular in the `cubicaltt` proof assistant) to investigate the extent to which this improves on working in regular HoTT. We mainly worked on trying to compute the natural number n such that $\pi_4(\mathbb{S}^3) = \mathbb{Z}/n\mathbb{Z}$ (we know indirectly that it is equal to 2, but computing it directly is still an open problem). We were not able to finish the computation, but we identified several of the obstacles, which I will describe here. (Received September 22, 2017)