Atelier : « LES ESPACES DE MODULES ET LEURS INVARIANTS EN PHYSIQUE MATHÉMATIQUE »
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***Workshop*: "MODULI SPACES AND THEIR INVARIANTS IN MATHEMATICAL PHYSICS"**
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A "$5d/2d/4d$" correspondence

Babak Haghighat *
babak@physics.harvard.edu

We propose a correspondence between two-dimensional $(0;4)$ sigma models with target space the moduli spaces of r monopoles, and four-dimensional $N=4$, $\mathrm{U}(r)$ Yang–Mills theory on del Pezzo surfaces. In particular, the two- and four-dimensional BPS partition functions are argued to be equal. The correspondence relies on insights from five-dimensional supersymmetric gauge theory and its geometric engineering in M–theory, hence the name "$5d/2d/4d$ correspondence". We provide various tests of our proposal. The most stringent ones are for $r=1$, for which we prove the equality of partition functions.

*Department of Physics, Harvard University, 17 Oxford Street, Cambridge, MA 02138, USA.