

A PLATONIC MONOPOLE, A RELATED RIEMANN SURFACE, AND AN IDENTITY OF RAMANUJAN

H.W. Braden, V.Z. Enolski¹

Department of Mathematics, Edinburgh University
(*Edinburgh, United Kingdom; e-mail: hwb@ed.ac.uk*),

¹Institute of Magnetism, Nat. Acad. Sci. of Ukraine
(*36, Academician Vernadsky Blvd.,*

Kyiv 03142, Ukraine),

and Department of Mathematics

and Statistics, Concordia University

(*7141 Sherbrooke West, Montreal H4B1R6, Quebec,*

Canada; e-mail: vze@ma.hw.ac.uk;

enolski@mathstat.concordia.ca)

S u m m a r y

We develop the Ercolani—Sinha construction of $SU(2)$ monopoles and make it effective for (a five-parameter family of centered) charge 3 monopoles. In particular, we show how to solve the transcendental constraints arising on the spectral curve. For a class of symmetric curves, the transcendental constraints become a number-theoretic problem, and a recently proven identity of Ramanujan provides a solution. The Ercolani—Sinha construction provides a gauge-transform of the Nahm data.