EMBEDDING SURFACES INTO S^3 WITH MAXIMUM SYMMETRY

SHICHENG WANG

We restrict our discussion to the orientable category. For $g > 1$, let OE_g be the maximum order of a finite group G acting on the closed surface Σ_g of genus g which extends over (S^3, Σ_g), for all possible embeddings $\Sigma_g \hookrightarrow S^3$. We will determine OE_g for each g, indeed the action realizing OE_g.

In particular, with 23 exceptions, OE_g is $4(g+1)$ if $g \neq k^2$ or $4(\sqrt{g}+1)^2$ if $g = k^2$, and moreover OE_g can be realized by unknotted embeddings for all g except for $g = 21$ and 481.

This is a joint work with Chao Wang, Yimu Zhang and Bruno Zimmermann.

Department of Mathematics, Peking University, Beijing, 100871, P. R. China
E-mail address: wangsc@math.pku.edu.cn