Perfect colorings of hyperbolic buckyball tilings

Manuel Joseph Cruz Loquias\textsuperscript{1}, Dirk Frettlöh\textsuperscript{2}

\textsuperscript{1}Institute Of Mathematics, University Of The Philippines Diliman, Quezon, Philippines, \textsuperscript{2}Faculty of Technology, Bielefeld University, Bielefeld, Germany

E-mail: mjcloquias@math.upd.edu.ph

Coxeter groups are used to study symmetries of tilings in hyperbolic d-space which are very "regular", e.g.: vertex-transitive, or those obtained from truncating tiles of regular tilings. We investigate the symmetry group of tilings of three-dimensional hyperbolic space by buckyballs (also known as C60 molecules named fullerenes), such as tilings discussed in [1], and apply methods of [2,3] to obtain perfect colorings of such tilings.


\textbf{Keywords:} hyperbolic tilings, buckyballs, perfect colorings