

1079-74-35

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Ileana Streinu. *Frameworks with crystallographic symmetry.*

Periodic frameworks with crystallographic symmetry are investigated from the perspective of a general deformation theory of periodic bar-and-joint structures in R^d . It is shown that natural parametrizations provide affine section descriptions for families of frameworks with a specified graph and symmetry. A simple geometric setting for diaplacive phase transitions is obtained. Upper bounds are derived for the number of realizations of minimally rigid periodic graphs. (Received November 27, 2011)