FACOLTÀ DI SCIENZE MATEMATICHE, FISICHE E NATURALI
DIPARTIMENTO DI MATEMATICA E FISICA "NICCOLÒ TARTAGLIA"

Decomposing knotted objects in 3D

Interviene
Yi-Sheng Wang
National Sun Yat-sen University, Taiwan

Introduce
Maurizio Paolini
Università Cattolica del Sacro Cuore

Abstract
A natural way to analyze a complicated object is by decomposing it into simpler pieces. A fundamental result in knot theory by Schubert states that every knot, a knotted circle in 3D, can be factorized into prime knots in a unique way, a reminiscence of the prime factorization of positive integers.
The result has profound influence in knot theory development, and has been generalized to other knotted objects, for instance, spatial graphs and handlebodies. We first review some known decomposition results along these lines and their applications on knot symmetry and recognition. Then we discuss how one can uniquely decompose a handlebody-knot by 2-spheres meeting the handlebody in three disks, a joint work with G. Bellettini and M. Paolini; its applications to a recent project with G. Bellettini, G. Paolini and M. Paolini are also presented.

Conferenza

Mercoledì 3 luglio 2024
Aula 25, ore 11.00
Università Cattolica del Sacro Cuore
via Garzetta 48, Brescia

UNIVERSITÀ CATTOLICA del Sacro Cuore