**Poster**

# Mechanoflexibility in crystalline coordination polymers: Correlating mechanical properties with structural prerequisites and consequences

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Generally perceived as inflexible, molecular crystals may, under certain circumstances, adapt to a variety of external stimuli whilst maintaining their integrity [1]. Once enriched with adaptable properties, crystals become exceptional candidates for application in advanced technologies where they bring in a range of fine-tunable properties. However, the practical application and implementation of mechanoflexible crystalline materials in smart devices and future technologies necessitate, in addition to excellent performance, a highly controllable mechanical output. To achieve that, an in-depth understanding of structural prerequisites and consequences of mechanoflexibility as well as their well-defined correlation with mechanical properties is required.

Coordination polymers (CP), in particular 1-D coordination polymers, emerged as an ideal class of crystalline materials for exploring the structural background and underlying principles leading to targeted flexible outputs [2-5]. Here we bring a new family of isostrucutral Cd(II) coordination polymers that allowed an extensive structural and mechanical characterization, while crystal mobilities observed on the macroscopic scale were correlated with structural features and mobilities on a molecular level. Extensive experimental findings were complemented by computational efforts [6].

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*This work has been fully supported by the Croatian Science Foundation under Project IP-2019-04-1242*.