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Elasticity of dense metal-organic framework compounds

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We studied the elasticity of metal-guanidinium formates (metal=Cu, Zn, Mn, Co, Ca, Cd) with experimental and theoretical techniques, among those resonant ultrasound spectroscopy, Brillouin spectroscopy and density functional theory. We found a good agreement between the different techniques and the theoretical data. Our results show a systematic variation of the bulk modulus as a function of the radius of the metal cation, indicating that the elastic behavior is mainly due to packing density.

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