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OPTICAL PROPERTIES OF SELF ORGANIZED SILVER NANOCOLUMNS

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Self-organized oriented Ag nanocolumns (NCIs) have been produced by alternate pulsed laser deposition. The relation between their optical properties and their morphology is studied. The slight variation of the deposition parameters leads to discontinuous NCIs. While optical absorption spectra evidence the non-spherical shape, comparison with numerical simulations shows discrepancies when assuming the NCIs as individual prolate nanoparticles. This is consistent with the presence of discontinuous NCIs formed by pieces that are close one to each other and suffer strong dipolar interactions.