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Aligned carbon nanotubes as nanocoax cables for subwavelenght light transmission JAKUB RYBCZYNSKI, KRZYSZTOF KEMPA, YANG WANG, Boston College, MA, ZHONGPING HUANG, DONG CAI, DAVID CARNAHAN, NanoLab Inc., USA, RENATA JARZEBINSKA, MICHAEL GIERSIG, CAESAR Institute, Bonn, Germany, ZHIFENG REN, Boston College, MA — We are presenting for the first time that vertically aligned carbon nanotubes can be used for fabrication of large-scale arrays of nanocoax cables. Multicoating with insulating and metallic layers results in a coaxial structure where light can be transmitted along the nanotube axis in the visible frequency range. We have shown that unlike simple optical waveguides, coaxial nanocables exhibit subwavelength transmission of light. Results obtained with near-field optical microscope confirm our predictions. Some aspects of nanocoax cables farbication and optical properties studies will be presented.

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