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Subwavelength Magnetic Plasmon Waveguides DENTCHO GENOV, University of California at Berkeley, HUI LIU, Nanjing University, DONGMIN WU, YONGMIN LIU, University of California at Berkeley, JENNIFER STEELE, Trinity University, CHENG SUN, University of California at Berkeley, SHINING ZHU, Nanjing University, XIANG ZHANG, University of California at Berkeley — A one-dimensional magnetic plasmon propagating in a linear chain of single split ring resonators is proposed. The subwavelength size resonators interact mainly through exchange of conduction current, resulting in stronger coupling as compared to the corresponding magnetoinductive interaction. Finite-difference time-domain simulations in conjunction with a developed analytical theory show that efficient energy transfer with signal attenuation of less then 0.57dB/μm and group velocity higher than 1/4c can be achieved. The proposed novel mechanism of energy transport in the nanoscale has potential applications in subwavelength transmission lines for a wide range of integrated optical devices.

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