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Magnetic properties of one dimensional Ni/ Cu (Al) /Ni nanowires: Role of non-magnetic spacer PARTHA PRATIM PAL, RANJIT PATI, Department of Physics, Michigan Technological University — One dimensional (1-D) magnetic multilayered nanowires with alternating ferromagnetic and non-magnetic structures arranged in sequence have been the subject of intense research in recent years for their potential applications in magneto-electronics or spintronics. We have used first-principles periodic density functional theory to study the stability, electronic, and magnetic properties of Ni/Cu/Ni and Ni/Al/Ni nanowires. The thickness of the non-magnetic spacer layer is systematically changed to explore the role of non-magnetic spacer in controlling the interlayer magnetic coupling and hence the magnetic properties of these 1-D nanowires.

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