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Magnetic Irreversibility in VO₂/Ni Bilayers. JOSE DE LA VENTA, JOSH LAUZIER, LOGAN SUTTON, Colorado State Univ — The temperature dependence of the coercivity and magnetization of VO₂/Ni bilayers was studied. VO₂ exhibits a well-known Structural Phase Transition (SPT) at 330-340 K, from a low temperature monoclinic (M) to a high temperature rutile (R) structure. The SPT of VO₂ induces an inverse magnetoelastic effect that strongly modifies the coercivity and magnetization of the Ni films. In addition, the growth conditions allow tuning of the magnetic properties. Ni films deposited on top of VO₂ (M) show an irreversible change in the coercivity after the first cycle through the high temperature phase, with a corresponding change in the surface morphology of VO₂. On the other hand, the Ni films grown on top of VO₂ (R) do not show this irreversibility. These results indicate that properties of magnetic films are strongly affected by the strain induced by materials that undergo SPT and that it is possible to control the magnetic properties by tuning the growth conditions.

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