Time-resolved optical spectroscopy of the itinerant antiferromagnets $\text{UMGa}_5$ $(M=\text{Ni, Pt})$ EE MIN ELBERT CHIA, HAE JA LEE, MST-CINT, Los Alamos National Laboratory, ERIC BAUER, NAMJUNG HUR, MST-10, Los Alamos National Laboratory, RICHARD AVERITT, ANTOINETTE TAYLOR, MST-CINT, Los Alamos National Laboratory, JOHN SARRAO, MST-10, Los Alamos National Laboratory — We present time-resolved optical conductivity measurements of the itinerant antiferromagnets UNiGa$_5$ ($T_N=85$K) and UPtGa$_5$ ($T_N=25$K), as well as the parent material UGa$_3$, using a pump-probe technique. The relaxation time $\tau$ diverges near $T_N$, which we attribute to the opening of a spin gap. $\tau$ also diverges at the lowest temperatures, which is similar to that shown by the heavy fermion YbAgCu$_4$, but with no blocking of electron-phonon scattering within the DOS peak. The transient amplitude exhibits a sign change at $T_N$, whose temperature dependence is also consistent with the appearance of a spin gap. We will also attempt to analyze our data using the Rothwarf-Taylor model.

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