

Abstract Submitted  
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**High Field Measurements of the Peierls and Spin-Peierls Transition in the Organic Conductor  $(Per)_2[Pt(mnt)_2]$  Using a Tunnel Diode Oscillator**<sup>1</sup> LAUREL WINTER, JAMES BROOKS, FSU/NHMFL — Recently, we have used a tunnel diode oscillator (TDO) to investigate the organic conductor  $(Per)_2[Pt(mnt)_2]$ , which undergoes both a Peierls (charge density wave - CDW) and spin-Peierls (SP) transition. Previously performed temperature dependent studies such as resistivity, specific heat, and susceptibility all show a common transition at  $T_c \sim 6 - 8$  K. Since these two transitions appear to occur exactly at the same temperature, the question of coupling between the two chains remains open. In addition, since each method is primarily sensitive to either the CDW transition or the SP transition it is possible some small temperature difference separating the two is not evident from these techniques. In this situation, the TDO technique is ideal to investigate the possible temperature difference between the two transitions, due to its high sensitivity and ability to simultaneously measure both changes in electrical transport and magnetic properties of a material. It is in this context that we will discuss the current TDO developed phase diagram of  $(Per)_2[Pt(mnt)_2]$  at fields up to and above 15 T, as well as discuss what exactly the TDO is measuring since it is a vital part of understanding the results of the study.

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