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#### Session Z53: Novel Magnetism in Low Dimensional Systems

11:30 AM–2:06 PM, Friday, March 18, 2022

Room: McCormick Place W-475B

Sponsoring Units: GMAG DMP

Chair: Omar Chmaissem, Argonne National Laboratory

#### **Abstract: Z53.00010 : Spin dynamics of Dy<sub>2</sub> molecules deposited onto micro-SQUID sensors\***

1:42 PM–1:54 PM

← Abstract →

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We report the results of ac susceptibility measurements performed down to very low temperatures ( $T > 13$  mK) on thin layers of asymmetric Dy<sub>2</sub> molecular coordination complexes that have been proposed as candidates for the realization of 2-qubit quantum gates. The molecules are integrated into a  $\mu$ -SQUID susceptometer by means of Dip Pen Nanolithography. Frequency-dependent susceptibility data measured on 5 and 20 molecular layers thick films are compared with similar results obtained for bulk polycrystalline samples. The results show that the magnetic anisotropy, exchange interactions and spin tunneling rates of Dy<sub>2</sub> units largely remain intact at the surface. Low-nuclearity lanthanide magnetic clusters might then provide suitable building blocks for the development of a scalable hybrid quantum architecture.

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