Abstract for an Invited Paper
for the MAR10 Meeting of
The American Physical Society

Earle K. Plyler Prize for Molecular Spectroscopy Talk: Laser Ablated Metal Atom Reactions to Form Novel Molecules

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A wide variety of laser-ablated metal atom reactions in solid rare gas matrices at cryogenic temperatures to form novel product molecules will be presented. These will include the ion-pair molecule $Li^+O_2^-$, the dialane molecule Al_2H_6, the thorium methylidene $CH_2{=}ThH_2$, the thorium borylene $FB{=}ThF_2$, the uranium methylidyne $HC{\equiv}UF_3$, the nitride $N{\equiv}UF_3$, and other recently prepared uranium bearing molecules.