Since its inception over 50 years ago, the Army Research Office has been the Army’s principal organization responsible for funding extramural basic research in the physical and engineering sciences. The vast majority of these programs have been executed through grants with university faculty. ARO strives to maintain a balance between needs driven research to solve recognized problems or enhance existing capabilities, and opportunity driven research to provide revolutionary, often unanticipated, new capabilities. Illustrative examples will be presented, ranging from the genesis and development of the laser in the past to quantum informatics, atom optics and nano-energetics in the future. Several of these examples will illustrate ARO’s long record of direct and indirect involvement with the Molecular Spectroscopy Symposium and its participants.