211.Title: Tunneling path toward spintronics

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Abstract: The phenomenon of quantum tunneling, which was discovered almost a century ago, has led to many subsequent discoveries. One such discovery, spin polarized tunneling, was made 40 years ago by Robert Meservey and Paul Tedrow (Tedrow and Meservey 1971 Phys. Rev. Lett. 26 192), and it has resulted in many fundamental observations and opened up an entirely new field of study. Until the mid-1990s, this field developed at a steady, low rate, after which a huge increase in activity suddenly occurred as a result of the unraveling of successful spin tunneling between two ferromagnets. In the past 15 years, several thousands of papers related to spin polarized tunneling and transport have been published, making this topic one of the hottest areas in condensed matter physics from both fundamental science and applications viewpoints. Many review papers and book chapters have been written in the past decade on this subject. This paper is not exhaustive by any means; rather, the emphases are on recent progress, technological developments and informing the reader about the current