

PREFACE

This special volume of *Acta Physica Polonica B* honors L. David Roper on the occasion of his 90th birthday on December 13, 2025. I thank Igor Strakovsky for the invitation to provide the preface to this volume. My connections with Dave come from being a faculty member and, most recently, chair of the Virginia Tech Physics Department, and also from my background as an experimental nuclear physicist, which introduced me to the Roper resonance well before I met Dave. I also have another connection with Dave. When I arrived at Virginia Tech as an assistant professor in 1997, I was given an office in Robeson Hall that I later learned had been Dave's office, and it was my office for 19 years until I became chair of the department in 2016.

L. David Roper grew up on a wheat and dairy farm near the small town of Arnett, Oklahoma. From there, he went on to Oklahoma Baptist University, where he majored in physics and mathematics, and received his bachelor's degree in 1958. Dave then went on to graduate studies in physics at the Massachusetts Institute of Technology. His Ph.D. thesis work, done under the guidance of Professor Bernard T. Feld of MIT and Dr. Michael J. Moravcsik of the Lawrence Radiation Laboratory, consisted of pion–nucleon phase-shift analysis studies and the first observation of what became known as the Roper resonance. This discovery was reported by Dave in a single-authored publication in *Physical Review Letters* in 1964. Dave went on to a postdoctoral position at the Lawrence Radiation Laboratory, and he then served for two years as a faculty member at Kentucky Southern College. In 1967, both Dave and Richard Arndt were hired as assistant professors at what was then known as Virginia Polytechnic Institute. Thus began a 30 year partnership (1967–1996) as fellow faculty members at Virginia Tech. Professors Arndt and Roper established a well-known research group in the area of particle scattering partial-wave analyses. They were early adopters of network technology, and they established the widely used Scattering Analysis Interactive Dial-in (SAID) suite of analysis and database codes in the 1980s. SAID was moved to George Washington University in 1998, where it continues to be a major online source for nuclear-particle scattering data and analysis results. In addition to his work on particle physics, Dave also performed research on biophysics in the 1970s and taught the first biophysics course in our department. He served as chair of the department in an interim role in 1977–1978 and for a full term in 1990–1994. Dave retired and became Professor Emeritus in 1998.

Dave has pursued a wide range of activities in his retirement. Active interests have included aviation, sky diving, playing trombone in the Blacksburg Community Band, active participation in many New River Valley organizations, acting in plays, and writing on a variety of topics including climate change, energy use, and sustainability. He has a deep interest in electric vehicles, of which he has owned several. In 2018, he organized an Electric Vehicles Show in Blacksburg during National Drive Electric Week. More recently, he has enjoyed riding on our Huckleberry Trail in Blacksburg on an electric tricycle (etrike). We enjoyed visiting with him when he pulled up on his etrike at a picnic shelter a couple of years ago, where our department's Society of Physics Students was hosting a department picnic. Finally, he has continued doing physics! Just a few months prior to his 90th birthday, Dave and Igor Strakovsky published a paper on a universal mass equation to describe baryon and meson excited states.

This volume contains a nice selection of articles on the Roper resonance and other topics in hadron physics. The Roper resonance turned 60 in 2024. It has been a mystery in particle physics since its discovery, and a full understanding of its nature has been elusive. Progress has been made over the years, but as the number of articles in this volume on the Roper resonance attests, it continues to be a subject of intense study.

On behalf of the Virginia Tech Physics Department and the university, we thank Igor Strakovsky for initiating this volume and the authors for their excellent and interesting contributions. We wish David Roper well on this milestone of his 90th birthday!

Mark L. Pitt
Blacksburg, January 2026