

Abstract Submitted  
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**A New Pion-Nucleon Partial Wave Analysis** MICHAEL SADLER, SHON WATSON, Abilene Christian University, JUGOSLAV STAHOV, University of Tuzla, Bosnia-Herzegovina — Existing determinations of the masses, widths and decay modes of low-lying excited states of the nucleon, as compiled in the Review of Particle Physics, are determined from energy-independent partial wave analyses of pion-nucleon scattering data. For the  $N^*(1440)$  and most other resonances under 2 GeV, the analyses cited are the Karlsruhe-Helsinki, Carnegie Mellon-Berkeley and Kent State analyses, the latter of which used the elastic amplitudes from the other two. The data included in these analyses were published before 1980. Other analyses, notably the recent ones from George Washington University and the Pittsburgh-Argonne group, are “not used for averages, fits, limits, etc.” Complete sets of measurements (differential cross sections, analyzing powers and spin rotation parameters) have been measured in the  $N^*(1440)$  resonance region since 1980, culminating in the Crystal Ball program at BNL to measure all-neutral final states (charge exchange, multiple pi-zero final states, and inverse photoproduction). A new partial wave analysis of the Karlsruhe-Helsinki type has been started by Abilene Christian University, University of Tuzla, and Rudjer Boskovic Institute. The analysis is constrained by fixed- $t$  and interior hyperbolic dispersion relations. Comparisons of the new analysis to modern experimental data and to previous analyses will be presented.

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