

Abstract Submitted
for the APR20 Meeting of
The American Physical Society

A NICER View of Spectral and Profile Evolution for Three X-ray Emitting Millisecond Pulsars¹ ANDREA LOMMEN, DOMINCK ROWAN, Haverford College, ZAYNAB GHAZI, Bryn Mawr College, LAUREN LUGO², ELIZABETH SPANO, Haverford College, ALICE HARDING, NASA Goddard, CHRISTO VENTNER, Centre for Space Research, North-West University, South Africa, RENEE LUDLAM, University of Michigan, PAUL RAY, MATTHEW KERR, Naval Research Laboratory, ZAVEN ARZOUMANIAN, NASA Goddard, SLAVKO BOGDANOV, Columbia University, JULIA DENEVA, Naval Research Laboratory, SEBASTIAN GUILLOT, IRAP, CNRS, NATALIA LEWANDOWSKA, West Virginia University, CRAIG MARKWARDT, NASA Goddard, SCOTT RANSOM, NRAO, TERUAKI ENOTO, Kyoto University, KENT WOOD, Naval Research Laboratory, KEITH GENDREAU, NASA Goddard — We present two years of Neutron star Interior Composition Explorer (NICER) X-ray observations of three young and energetic rotation-powered millisecond pulsars: PSRs B1937+21, B182124, and J0218+4232. We fit Gaussians and Lorentzians to the pulse profiles for different energy sub-bands of the soft X-ray regime to measure the energy dependence of pulse separation and width. We find that the separation between pulse components of PSR J0218+4232 decreases with increasing energy at 3σ confidence. Our phase-resolved spectral results provide updated constraints on the non-thermal X-ray emission of these three pulsars. The photon indices of the modeled X-ray emission spectra for each pulse component of PSR B1937+21 are inconsistent with each other at the 90% confidence level.

¹Funded by NASA NICER and by NANOGrav Physics Frontier Center

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Date submitted: 12 Jan 2020

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