Chris Fryer

Position: Scientist 5 (Los Alamos National Laboratory),
adjunct faculty (University of Arizona)
adjunct faculty (University of New Mexico

Period covered: 01/2016-10/2016

I Scientific Work

Chris Fryer has worked on a broad range of astrophysics, focusing on astrophysical transients: their progenitors, their engines and their emission. He was part of the team that identified the importance of convection above the proto-neutron star for the core-collapse supernova engine and led the development of the first code studying this convection in 3-dimensions. He led the effort connecting compact mergers to short-duration gamma-ray bursts, producing one of the first simulations predicting the off-sets of these bursts. This work was recently confirmed through gamma-ray burst observations. He formed the LANL team modeling the emission from astrophysical transients focusing on mergers and supernovae. At LANL, he is the PI of the high energy/density physics impact program using laboratory experiments to study turbulence, radiation flow and opacities. He also works within the ASC next generation code team at LANL.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

II b Work With Students

Janie de la Rosa (UT San Antonio), Angela Collier (Univ. Kentucky), Harrison Bachrach (UC Berkeley), Sydney Andrews (NM Tech), Cole Kendrick (NM Tech)

II c Diploma thesis supervision

Janie de la Rosa (defending in 2017)

II d Other Teaching Duties

II e. Work With Postdocs

Primary Mentor: Carola Ellinger (LANL) – Studying Supernova Ejecta, Sam Jones (LANL) – Studying Stellar Mixing

III. Service activities

III a. Within ICRANet: SOC (Supernovae, Hypernovae and Binary-Driven Hypernovae, an Adriatic Workshop)

III b. Outside ICRANet: SOC (COSPAR session, meeting was cancelled at last minute in Turkey)

PI: High Energy Density Physics Impact Program (LANL)

Director: Center for Theoretical Astrophysics (LANL)

IV. Other

2016 List of Publication (24 total from 01/16-10/16, 14 refereed – refereed only listed)

1) Johns, H.~M., Lanier, N.~E., Kline, J.~L., et al. 2016, Review of Scientific Instruments, 87, 11E337

2) Belczynski, K., Heger, A., Gladysz, W., et al. 2016, aap, 594, A97

3) Lloyd-Ronning, N.~M., Dolence, J.~C., & Fryer, C.~L. 2016, MNRAS, 461, 1045

4) Pignatari, M., Herwig, F., Hirschi, R., et al. 2016, APJS, 225, 24

5) Abbott, B.~P., Abbott, R., Abbott, T.~D., et al. 2016, APJS, 225, 8

6) Abbott, B.~P., Abbott, R., Abbott, T.~D., et al. 2016, APJL, 826, L13

7) Cote, B., Ritter, C., O'Shea, B.~W., et al. 2016, APJ, 824, 82

8) Annis, J., Soares-Santos, M., Berger, E., et al. 2016, APJL, 823, L34

9) Soares-Santos, M., Kessler, R., Berger, E., et al. 2016, APJL, 823, L33

10) Harding, J.~P., Fryer, C.~L., & Mendel, S. 2016, APJ, 822, 102

11) Fryer, C.~L., Dodd, E., Even, W., et al. 2016, High Energy Density Physics, 18, 45

12) de la Rosa, J., Roming, P., Pritchard, T., & Fryer, C. 2016, APJ, 820, 74

13) Belczynski, K., Repetto, S., Holz, D.~E., et al. 2016, APJ, 819, 108

14) Jones, S., Ritter, C., Herwig, F., et al. 2016, MNRAS, 455, 3848