

Why is it worth to spend 1.5 million CPU-hours in relativistic astrophysics?

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Over the last year and a half, we have used about 1 million CPU hours per year of the computer time of the RES. In this period we have accomplished several tasks in the field of relativistic (magneto-)hydrodynamics. The most salient ones among them are the calculation of the early phases of propagation of ultra-relativistic shells of plasma and the synchrotron emission of relativistic jets. The former calculations try to model the so-called afterglow phase of gamma-ray bursts (GRBs), which find themselves among the most energetic events in our Universe. The latter simulations are of paramount importance to understand the actual physics happening in relativistic, astrophysical sources.