Effective field theory approach to post-Newtonian self-force - Barak Kol

Abstract: *We formulate an effective field theory (EFT) which describes the post-Newtonian (PN) inspiral of two gravitating bodies including dissipative effects, thus formulating the computation to all orders.*

The review presentation at Capra 16 (Dublin) was based upon the following articles:

W. D. Goldberger and I. Z. Rothstein,"An Effective field theory of gravity for extended objects," Phys. Rev. D **73**, 104029 (2006) [hep-th/0409156].

B. Kol and M. Smolkin, "Classical Effective Field Theory and Caged Black Holes," Phys. Rev. D **77**, 064033 (2008) [arXiv:0712.2822 [hep-th]]. "Non-Relativistic Gravitation: From Newton to Einstein and Back," Class. Quant. Grav. **25**, 145011 (2008) [arXiv:0712.4116 [hep-th]].

C. R. Galley and M. Tiglio, "Radiation reaction and gravitational waves in the effective field theory approach," Phys. Rev. D **79**, 124027 (2009) [arXiv:0903.1122 [gr-qc]].

O. Birnholtz, S. Hadar and B. Kol, "A theory of post-Newtonian radiation and reaction," arXiv:1305.6930 [hep-th].