

T3_111 DOING PHYSICS WITH A COMPUTER IN HIGH SCHOOLS: DESIGNING AND IMPLEMENTING NUMERICAL EXPERIMEN

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The project, devoted to teachers and last two-years students of High Schools, is aimed at providing hands-on demonstrations of designing and implementing simple computer experiments to show their power in predicting and unveiling different physical phenomena. The focus is on actual problem solving and on algorithms rather than on programming languages or on sophisticated “canned” computer simulations. Students are provided with numerical instruments that allow to study real- world problems using only the basic knowledge normally available to them. In the activity already done with students of different High Schools, such problems have included e.g. the motion of planets (universal gravitation, Kepler’s laws), the physics of classic billiards and chaos (from circular billiards to the stadium billiards), the Brownian motion, the ray optics (light refraction), etc. Each topic can be afforded in one assisted hands-on sessions in a computer laboratory.