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   Sommario/riassunto Long description: This work aims at developing a numerical simulation
                      method, Soft PARticle Code (SPARC). The term textitsoft emphasizes
                      that no boundaries between particles are defined and every particle
                      possesses a support consisting of a set of adjacent particles. The
                      polynomial interpolation/approximation method is utilized for the
                      evaluation of spatial derivatives using the information carried by
                      particles in supports. The system of equations consisting of spatial
                      derivatives is solved using an iterative nonlinear solver and the
                      computation of the Jacobian matrix is parallelized. The simulations of
                      laboratory tests have been carried out to show the applications and
                      limitations of the current version of SPARC. In addition to the
                      simulations, laboratory (zig-zag) model tests using fine sand were
                      carried out, in which the cyclic tilt of a retaining wall induces a peculiar
                      motion in the backfill (sand), with closed trajectories (eddies).