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Quantum Continuum Mechanics for Many-Electron Systems in a Strong Magnetic Field[1] STEFANO PITTALIS, University of Missouri-Columbia, U.S.A., I.V. TOKATLY, Universidad del Pais Vasco and KERBASQUE, Basque Foundation for Science, Spain, G. VIGNALE, University of Missouri-Columbia, U.S.A. — A quantum continuum mechanics approach for the determination of the excitation energies of many-electron systems in strong magnetic field is introduced by means of linear response theory (LRT) and time-dependent deformation-functional theory (TD-DefT). In the high-frequency (anti-adiabatic) limit the collective modes of the system appear as the small oscillations of an elastic body in the presence of non-inertial forces reminiscent of the Coriolis and centrifugal forces. Interestingly, the complexity of the problem does not increase significantly with the particle number and only ground state properties are needed as an input. Further results, together with elementary and illustrative examples, may be presented as well.

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Stefano Pittalis
University of Missouri

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