Quantum friction (or contactless friction) is a zero-point fluctuation phenomenon in which two objects (microscopic or macroscopic) in relative motion exert a drag force on one another at a distance (see, e.g., [1]), and whose mere existence is still under hot debate [2]. In my talk I will describe two complementary approaches to the description of friction forces on atoms based on macroscopic quantum electrodynamics; (i) by studying the dispersion interaction on a moving atom with the macroscopic body at rest [3], and (ii) by developing a quantum theory of light in nonreciprocal media [4]. As moving media are a special class of bianisotropic nonreciprocal media, this allows for a construction of a quantum theory of light in moving media and the complementary way of computing friction forces on atoms at rest [5]. Both approaches independently predict friction forces that are linear in the relative velocity of both objects which has independently been confirmed via a microscopic approach [6]. The approach via macroscopic QED then allows to discuss extensions to resonant forces on excited atoms that can lead to both drag and acceleration.