Optically-trapped, ultra-cold gases of spin $\frac{1}{2}$-up and spin $\frac{1}{2}$-down 6Li atoms enable “designer” interactions, offering a versatile environment for simulating exotic quantum systems. I will discuss our latest measurements of hydrodynamic transport coefficients in the strongly interacting regime, where the cloud exhibits scale invariant, “nearly perfect” flow, analogous to that of a quark-gluon plasma, a state of matter at 2 trillion degrees that existed microseconds after the Big Bang. Then I will discuss measurements of information scrambling in the very weakly interacting regime, where the cloud behaves as a large spin lattice in energy space, with effective long-range interactions.