A thermal bath in quantum physics: more friend than foe?

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I will show that, contrary to a widespread notion, the contact of quantum systems, e.g. atoms or spins, with thermal reservoirs ("baths") need not destroy their quantumness.

On the contrary, not only do thermal baths allow the system to sustain its quantum coherence under appropriate control, they may even induce or augment quantum processes via bath-mediated interactions. These effects give us a powerful handle on quantum dynamics and thermodynamics.