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Toward a unified description of spin incoherent behavior at zero and finite temperatures MOHAMMAD SOLTANIEH-HA, ADRIAN FEIGUIN, Northeastern Univ. — While the basic theoretical understanding of spin-charge separation in one-dimension, known as "Luttinger liquid theory", has existed for some time, recently a previously unidentified regime of strongly interacting one-dimensional systems at finite temperature came to light: The "spin-incoherent Luttinger liquid" (SILL). This occurs when the temperature is larger than the characteristic spin energy scale. I will show that the spin-incoherent state can be written exactly as a generalization of Ogata and Shiba's factorized wave function in an enlarged Hilbert space, using the so-called "thermo-field formalism." Interestingly, this wave-function can also describe the *ground-state* of other model Hamiltonians, such as t-J ladders, and the Kondo lattice. This allows us to develop a unified formalism to describe SILL physics both at zero, and finite temperatures.

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