Abstract for an Invited Paper
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The Lieb-Oxfourd bound and the exchange-correlation kernel from the strictly-correlated electrons functional[1]

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I will present some recent results based on the strictly-correlated electrons (SCE) functional: 1) a rigorous method to set lower bounds to the optimal particle-number dependent constant appearing in the Lieb-Oxford bound, and 2) an investigation of exact properties in the time domain, including an analytical expression for the kernel in one-dimension, with an analysis of its behavior for the case of bond-breaking excitations.