Abstract Submitted
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A Scientific Cloud Computing Platform for Condensed Matter Physics[1] K. JORISSEN, W. JOHNSON, F. D. VILA, J. J. REHR, U. Washington — Scientific Cloud Computing (SCC) makes possible calculations with high performance computational tools, without the need to purchase or maintain sophisticated hardware and software. We have recently developed an interface dubbed SC2IT [1] that controls on-demand virtual Linux clusters within the Amazon EC2 cloud platform [2]. Using this interface we have developed a more advanced, user-friendly SCC Platform configured especially for condensed matter calculations. This platform contains a GUI, based on a new Java version of SC2IT, that permits calculations of various materials properties. The cloud platform includes Virtual Machines preconfigured for parallel calculations and several precompiled and optimized materials science codes for electronic structure and x-ray and electron spectroscopy. Consequently this SCC makes state-of-the-art condensed matter calculations easy to access for general users. Proof-of-principle performance benchmarks [1] show excellent parallelization and communication performance. [1] K. Jorissen, F.D. Vila, and J.J. Rehr, Comp. Phys. Comm. 183 1911 (2012) [2] http://aws.amazon.com and http://www.feffproject.org/scc

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