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Anställning

Biträdande universitetslektor
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2021 feb. 9 → present

Profilområdesmedlem
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2022 aug. 26 → present

Principal Investigator
eSSENCE: The e-Science Collaboration
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2023 jan. 25 → present

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Forskningsoutput

Downfolding from ab initio to interacting model Hamiltonians: comprehensive analysis and benchmarking of the DFT+cRPA approach
Chang, Y., van Loon, E. G. C. P., Eskridge, B., Busemeyer, B., Morales, M. A., Dreyer, C. E., Millis, A. J., Zhang, S., Wehling, T. O., Wagner, L. K. & Rösner, M., 2024 dec., I: npj Computational Materials. 10, 1, 129.

Nb_3Cl_8: a prototypical layered Mott-Hubbard insulator
Grytsiuk, S., Katsnelson, M. I., Loon, E. G. C. P. V. & Rösner, M., 2024 dec., I: npj Quantum Materials. 9, 1, 8.

Second-order phase transitions and divergent linear response in dynamical mean-field theory
Van Loon, E. G. C. P., 2024 juni 15, I: Physical Review B. 109, 24, L241110.

Dual Bethe-Salpeter equation for the multiorbital lattice susceptibility within dynamical mean-field theory
Van Loon, E. G. C. P. & Strand, H. U. R., 2024 apr., I: Physical Review B. 109, 15, 155157.

Unconventional Charge-Density-Wave Gap in Monolayer NbS_2
Knispel, T., Berges, J., Schobert, A., van Loon, E. G. C. P., Jolie, W., Wehling, T. O., Michely, T. & Fischer, J., 2024 jan. 31, I: Nano Letters. 24, 4, s. 1045-1051 6 s.

Ab initio electron-lattice downfolding: Potential energy landscapes, anharmonicity, and molecular dynamics in charge density wave materials
Schobert, A., Berges, J., van Loon, E. G. C. P., Sentef, M. A., Brener, S., Rossi, M. & Wehling, T. O., 2024, I: SciPost Physics. 16, 2, 046.

Larmor precession in strongly correlated itinerant electron systems
van Loon, E. & Strand, H., 2023 okt. 13, I: Communications Physics. 6, 9 s., 289.

Coulomb engineering of two-dimensional Mott materials
van Loon, E. G. C. P., Schüler, M., Springer, D., Sangiovanni, G., Tomczak, J. M. & Wehling, T. O., 2023, I: npj 2D Materials and Applications. 7, 1, 47.

Two-particle correlations and the metal-insulator transition: Iterated perturbation theory revisited
Van Loon, E. G. C. P., 2022 juni 6, I: Physical Review B. 105, 24, 245104.

Degenerate plaquette physics as key ingredient of high-temperature superconductivity in cuprates
Danilov, M., van Loon, E. G. C. P., Brener, S., Iskakov, S., Katsnelson, M. I. & Lichtenstein, A. I., 2022, I: npj Quantum Materials. 7, 1, 50.

A full gap above the Fermi level: the charge density wave of monolayer VS2
Van Efferen, C., Berges, J., Hall, J., Van Loon, E., Kraus, S., Schobert, A., Wekking, T., Huttmann, F., Plaar, E., Rothenbach, N., Ollefs, K., Arruda, L. M., Brookes, N., Schönhoff, G., Kummer, K., Wende, H., Wehling, T. & Michely, T., 2021 dec. 1, I: Nature Communications. 12, 1

Downfolding the Su-Schrieffer-Heeger model
Schobert, A., Berges, J., Wehling, T. & van Loon, E., 2021 okt., I: SciPost Physics. 11, 4, 079.

Downfolding approaches to electron-ion coupling: Constrained density-functional perturbation theory for molecules
Van Loon, E. G. C. P., Berges, J. & Wehling, T. O., 2021, I: Physical Review B. 103, 20

Efficient fluctuation-exchange approach to low-temperature spin fluctuations and superconductivity: From the Hubbard model to NaxCoO2·yH2O
Witt, N., Van Loon, E. G. C. P., Nomoto, T., Arita, R. & Wehling, T. O., 2021, I: Physical Review B. 103, 20

Random phase approximation for gapped systems: Role of vertex corrections and applicability of the constrained random phase approximation
Van Loon, E. G. C. P., Rösner, M., Katsnelson, M. I. & Wehling, T. O., 2021, I: Physical Review B. 104, 4

Undervisning

2022	Grundläggande statistisk fysik och kvantstatistik (FYSB 23)
2021	Solid State Theory (FYST25)