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Nuclear reactions as a tool to study the microscopic structure of pygmy and giant resonances

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\documentclass[12pt,a4paper]{article}
\usepackage{lipsum}
\usepackage{authblk}
\usepackage[top=2cm, bottom=2cm, left=2cm, right=2cm]{geometry}
\usepackage{fancyhdr}

\pagestyle{fancy}
\begin{document}

\title{Nuclear reactions as a tool to study the microscopic structure of pygmy and giant resonances}
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\date{} %remove date

\maketitle

\abstract{An advanced microscopic approach based on the energy density functional theory and the quasiparticle-phonon model has been implemented in studies of pygmy and giant resonances \cite{NT16,Len19}. In addition, the nuclear structure model is extended by a reaction theory for the calculation of (d,p)- and (d,pγ) reaction cross-sections in order to investigate the microscopic structure of the pygmy dipole resonance and its collectivity \cite{Spi20,Wei21}. Besides the single-particle nature of the excited states, various properties of the low-energy dipole strength emerge from the analysis of (γ,γ') spectral distributions and branching ratios, from which the role of the quasicontinuum is investigated \cite{Wei21,Tso22}. Unprecedented access to the theoretical wave functions demonstrating the one-particle, one-hole neutron origin of the pygmy dipole resonance in the studied nuclei was achieved. The current studies will support day-one gamma-above-neutron-threshold experiments at ELI-NP targeting ground-state γ decays of giant and pygmy resonances, as well as studies by multi-step γ decays through low-lying states.}

\begin{thebibliography}{99}
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\bibitem{Spi20} M. Spieker, A. Heusler, B. A. Brown, T. Faestermann, R. Hertenberger, G. Potel, M. Scheck, N. Tsoneva, M. Weinert, H.-F. Wirth, and A. Zilges, Phys.Rev.Lett. 125 (2020) 102503.
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Phys. Rev. C 106, 044326 (2022).

\end{thebibliography}
\end{document}

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