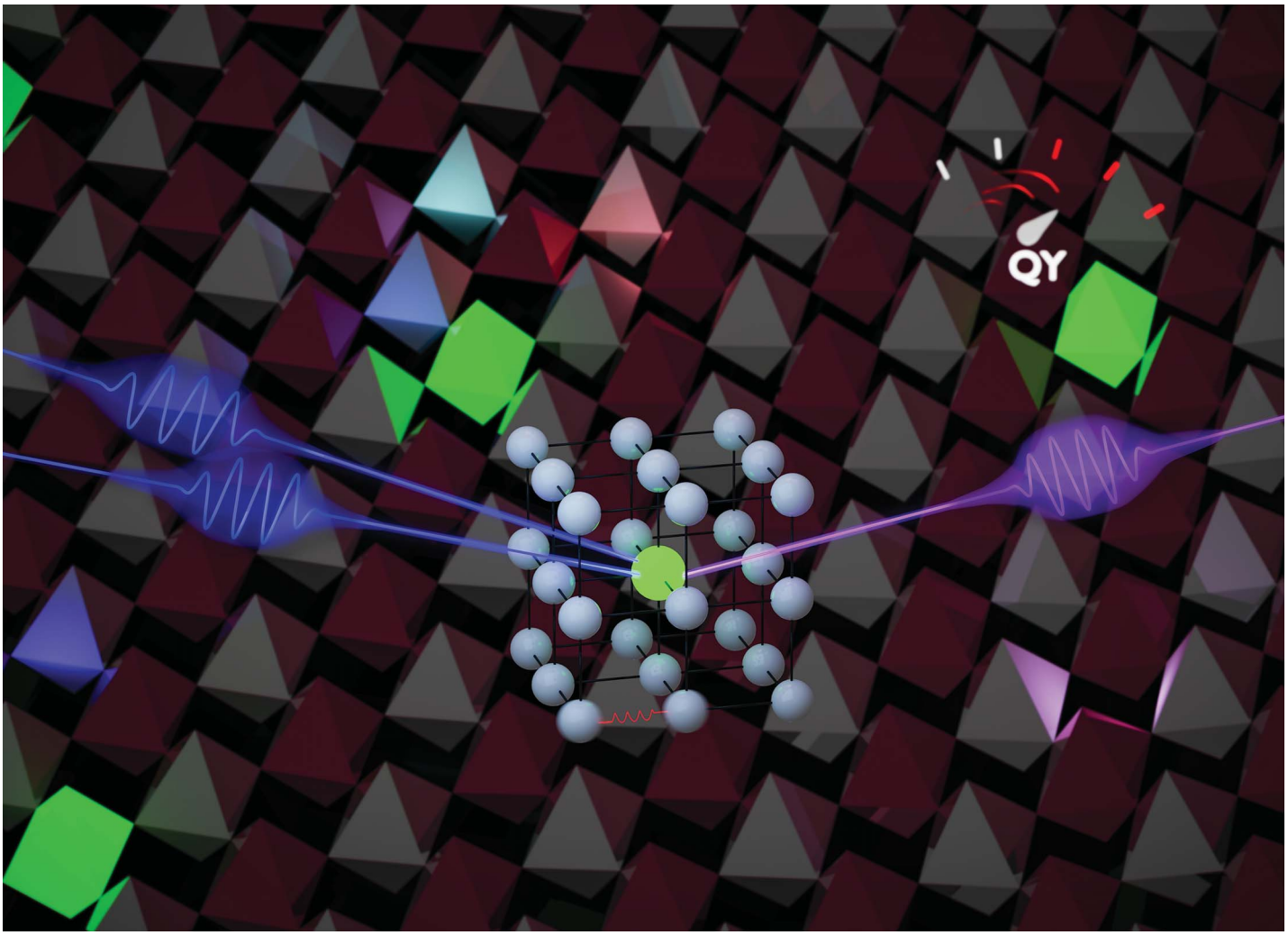

Showcasing research from Professor Markus Suta's laboratory, Inorganic Photoactive Materials Group, Heinrich Heine University Düsseldorf, Düsseldorf, Germany.

Design principles for (efficient) excited-state absorption-based blue-to-UV upconversion phosphors with Pr^{3+}

Cost-effective conversion of blue light from LEDs to ultraviolet light is possible with the lanthanide ion Pr^{3+}. But how? It turns out that not only the vibrational energies of a surrounding host compound, but also the ligand field and structural design play a decisive role to ensure optimum upconversion quantum yields at decent incident power densities. The chloridoelpasolite $Cs_2NaYCl_6:Pr^{3+}$ fulfils many of the desirable properties for blue-to-UV upconversion and outperforms any other reported candidate so far.

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As featured in:

See Markus Suta *et al., Chem. Sci.,* 2025, **16**, 12309.

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