Accurate bulk properties of nuclei and nuclear matter from potentials with $\Delta$ isobars

**Objectives**
- Construct nuclear interactions that accurately describe atomic nuclei and nuclear matter
- Enable accurate computations of nuclear density distributions, polarizabilities, charge radii, and neutron skins
- Consistent description of nuclear matter and finite nuclei on a single footing
- Inclusion of $\Delta$ isobars (lowest-mass excitations of the nucleon) improves the saturation point of nuclear matter

**Impact**
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**Accomplishments**
- New potentials employed in several high-impact publications on nuclear charge radii

Charge radii (top) and ground-state energies (bottom) of calcium isotopes with $A$ nucleons computed with new potentials $\Delta$NNLO$_{GO}$. 