

# Net parallel carbon rotation in the W7-X stellarator

A deviation from neoclassical predictions?

- Radial electric field and net parallel rotation are fundamental neoclassical predictions in stellarators.
- First inversions of the radial electric field and net parallel rotation of the  $C^{6+}$  ions from the measurements of the multi-chord CXRS system in W7-X.
- Detailed treatments of the 3D flow, the viewing geometry and the atomic physics corrections.
- Inverted flow profiles show an overall consistency with neoclassical expectations (size, sign and tendencies).
- Nevertheless, quantitative differences of 1 to 10 km/s are often observed around mid-radius.
- The comparison with other diagnostics does not support the existence of an experimental deviation from the neoclassical ambipolar  $E_r$ .

