Magn. Reson. Discuss.,
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Interactive comment on "Highly Stable Magic Angle Spinning Spherical Rotors Lacking Turbine Grooves" *by* Thomas M. Osborn Popp et al.

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It would be interesting to know if more than 5 rotors were tested, and if the performance documented in Fig. 3 refers to their average performance or to unique cases.

The description of the curves of Fig. 3 as "pressure increases at higher pressures less effectively increased at spinning rate than at lower pressure" should be replaced by a sober reference to the figure itself.

While the discussion of the moments of inertia for empty spherical and cylindrical rotors is interesting, it is only at the very end that the authors admit that the sample and caps will affect these considerations.

The sentence "adjusted until the rotor's spinning axis was inclined to the magic angle,

taken as the maximal number of rotor echoes in the time domain data" leaves me dumbfounded. Surely it is the decay of the envelope of the rotational echoes that could be taken as a measure for the adjustment of the magic angle.

The claim that "the fact that rotor H established a stable spinning axis about its own axis of symmetry" is interesting, but this hardly "shows that the grooves do not direct the rotor to spin about this axis, but rather the geometry of the rotor itself is responsible". There is no evidence that the machining of the groves agrees with the geometry.

I have learned in a first-year physics course (at ETH!) that objects end up tumbling around the axis with the largest moment of inertia. I believe that this has been known since the XIXth, perhaps even since the XVIIIth century. It is unfortunate that the designers of "early spacecraft such as Explorer 1" were not aware of this phenomenon.

This seems to be a rather hastily written progress report, in my opinion not suitable of MR.

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