The spinorial ball: a macroscopic object of spin-1/2

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- Spin-1/2 : mostly a quantum mechanics feature, with some ‘indirect’ macroscopic analogs (Dirac belt trick). Often described as *‘something that does not come back to its initial state after one turn but that does after two turns’.*

- Can we build a direct macroscopic representation of spin-1/2 to gain intuition on it ?

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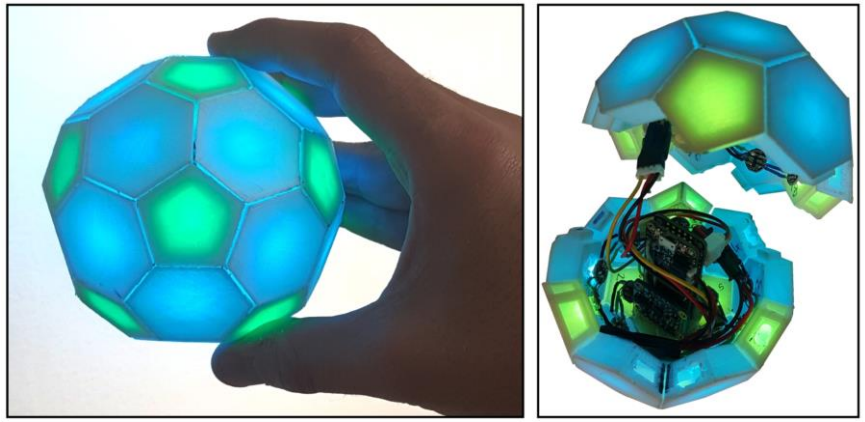
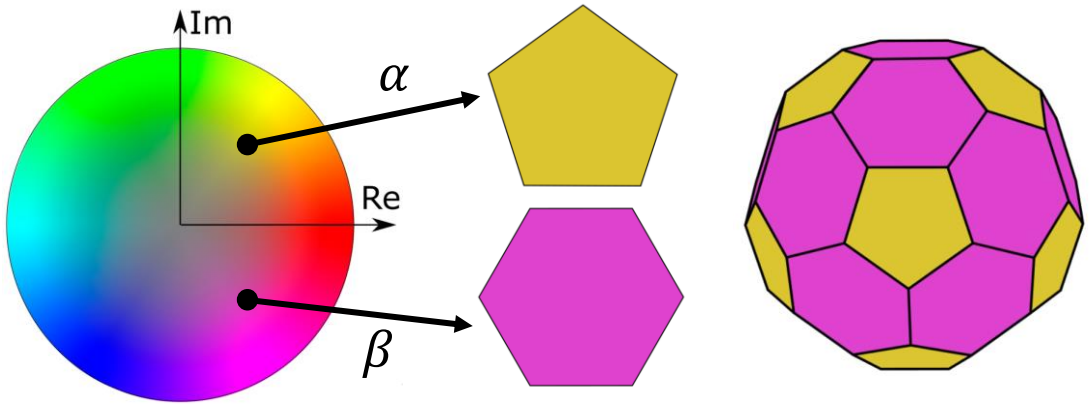
- The spinorial ball is an electronic-based representation of spin-1/2. Colors encode complex components of the spinor (or qubit)



$$\boldsymbol{\alpha}\,|\uparrow\rangle + \boldsymbol{\beta}\,|\downarrow\rangle, \qquad |\boldsymbol{\alpha}|^2 + |\boldsymbol{\beta}|^2 = \mathbf{1}$$



- Provides a direct vizualization of the homotopy classes of the rotation group.
- Random reinitialization: emulate quantum measurement and wave function collapse
- Open source project: feel free to build your own!

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