Soft violation of Bell's inequality

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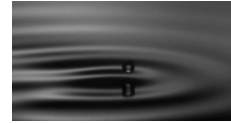
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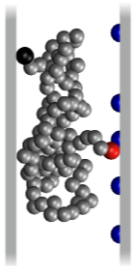M'dhi Azouani
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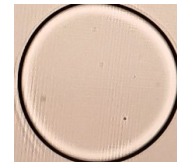Corentin Bourdiol
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Principles of an hydrodynamic Bell test
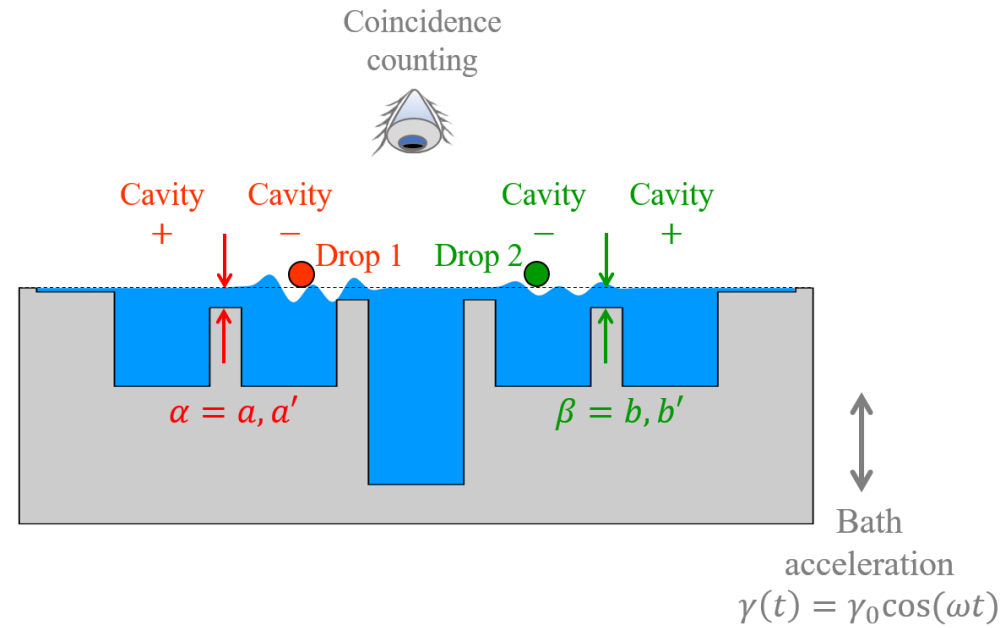
$$X_A = \pm 1 \qquad X_B = \pm 1$$

$$M(\alpha, \beta) = \langle X_A X_B \rangle_{\alpha, \beta}$$

$$\mathcal{S}(a, b, a', b') = M(a, b) + M(a', b) + M(a, b') - M(a', b')$$

$$\forall \, (a, b, a', b') \quad |\mathcal{S}| \leq 2 \, ?$$

Merci pour votre attention

Hubert *et al*, (2022), (editor's highlight) https://www.nature.com/articles/s41467-022-31736-z
Papatryfonos *et al*, (2022) https://www.nature.com/articles/s42005-022-00918-y
Papatryfonos *et al*, (submitted), (2022) preprint arXiv:2208.08940