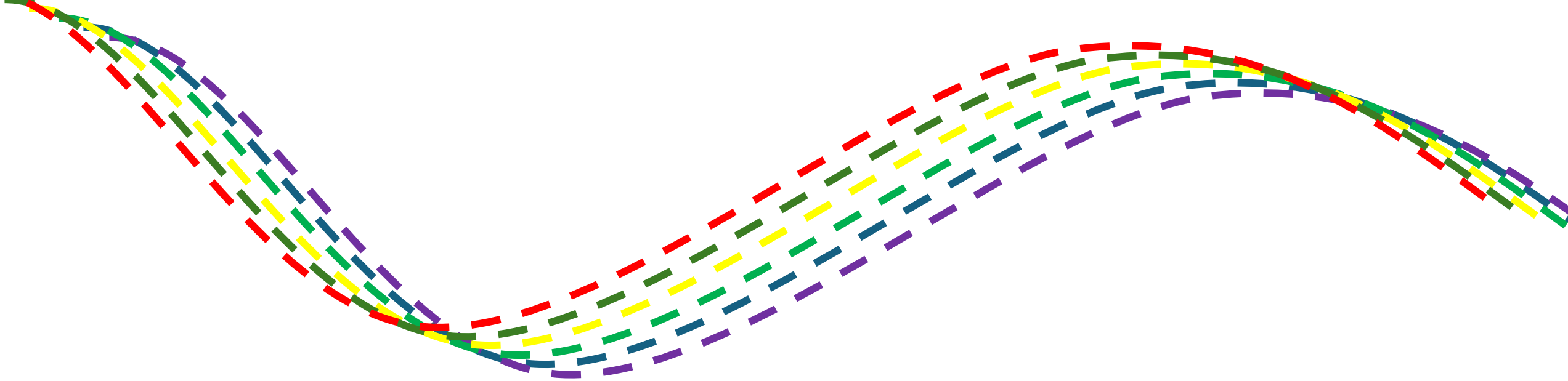
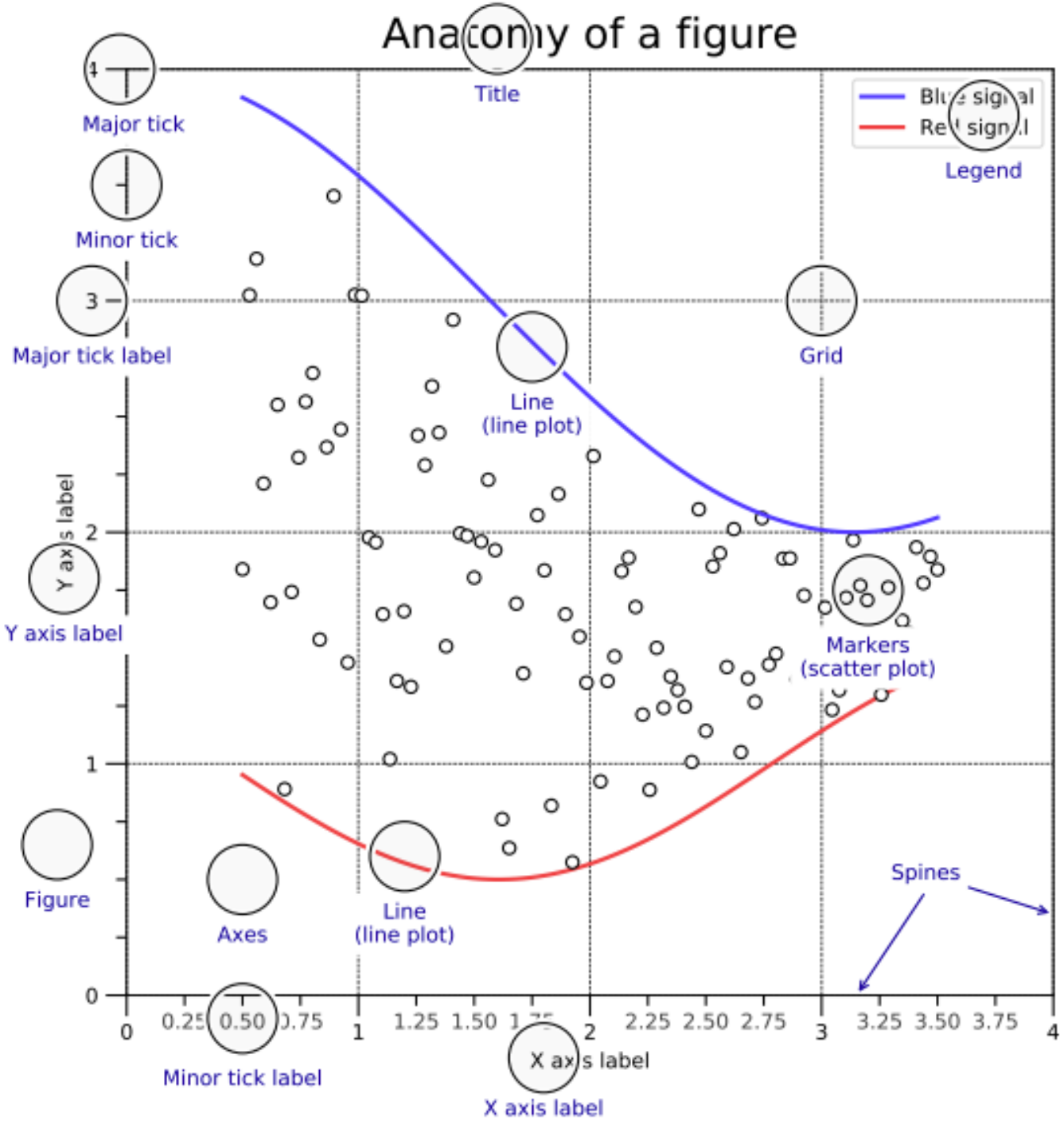


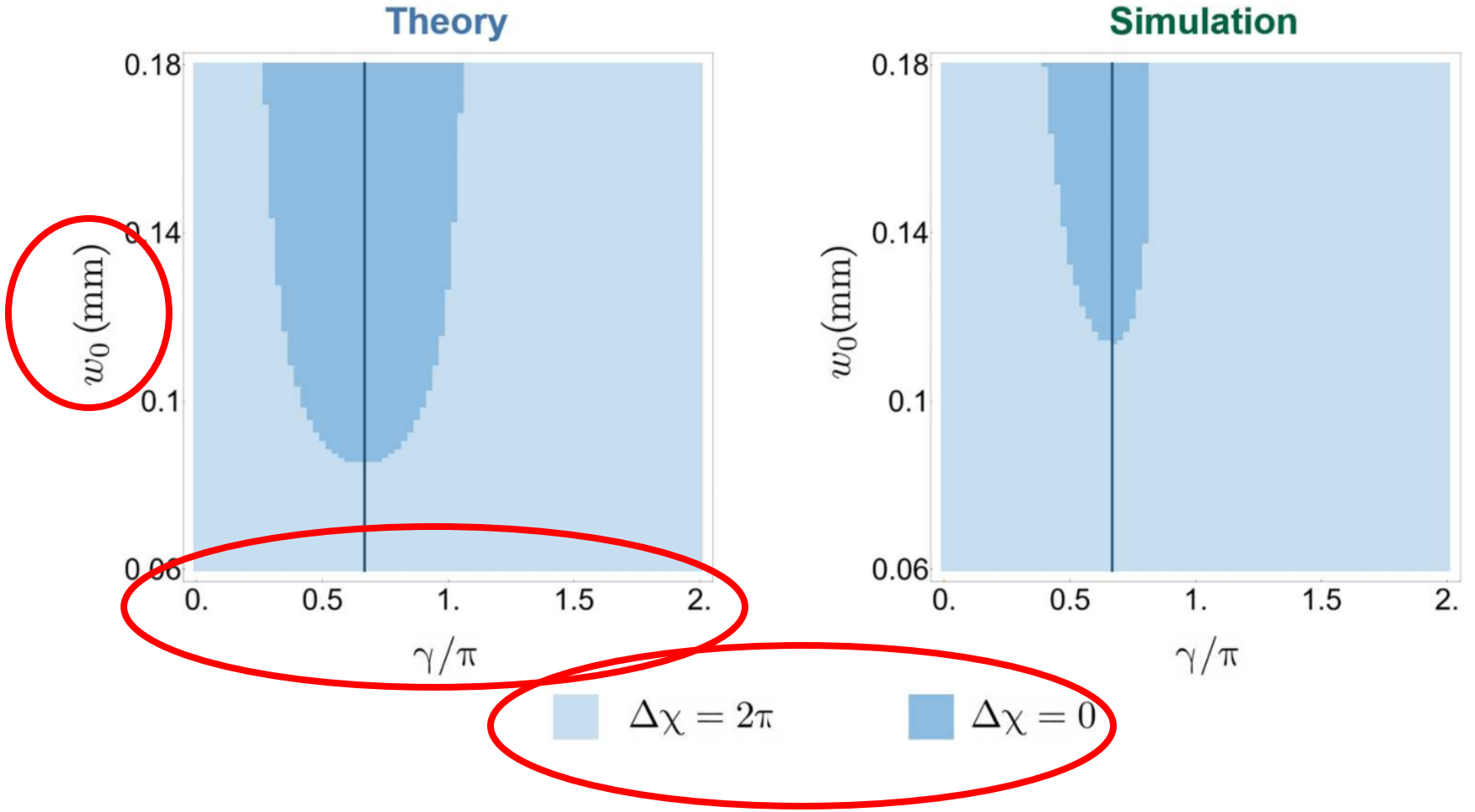
Figures that your postdoc won’t hate

by Manuel Ferrer



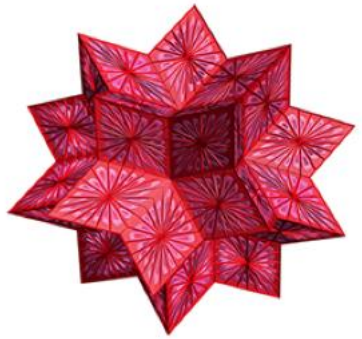
Anatomy of a plot

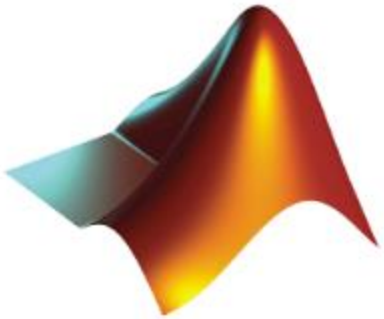
Must of a plot



How to plot?

Wolfram Mathematica





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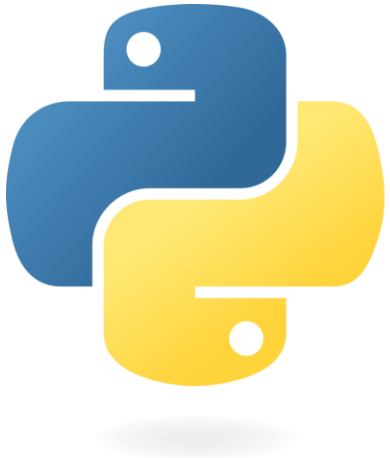
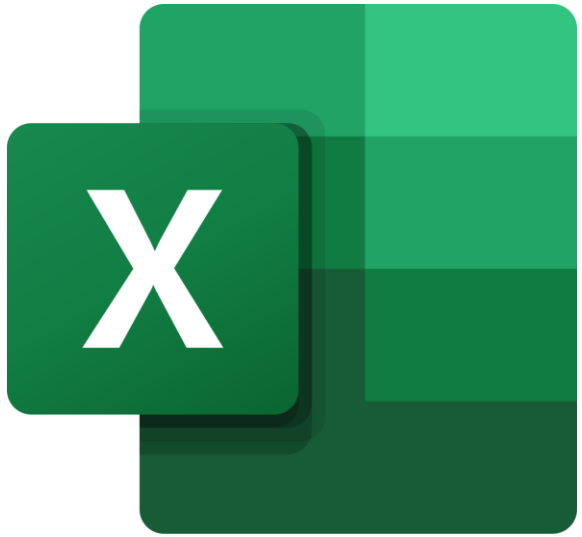


julia



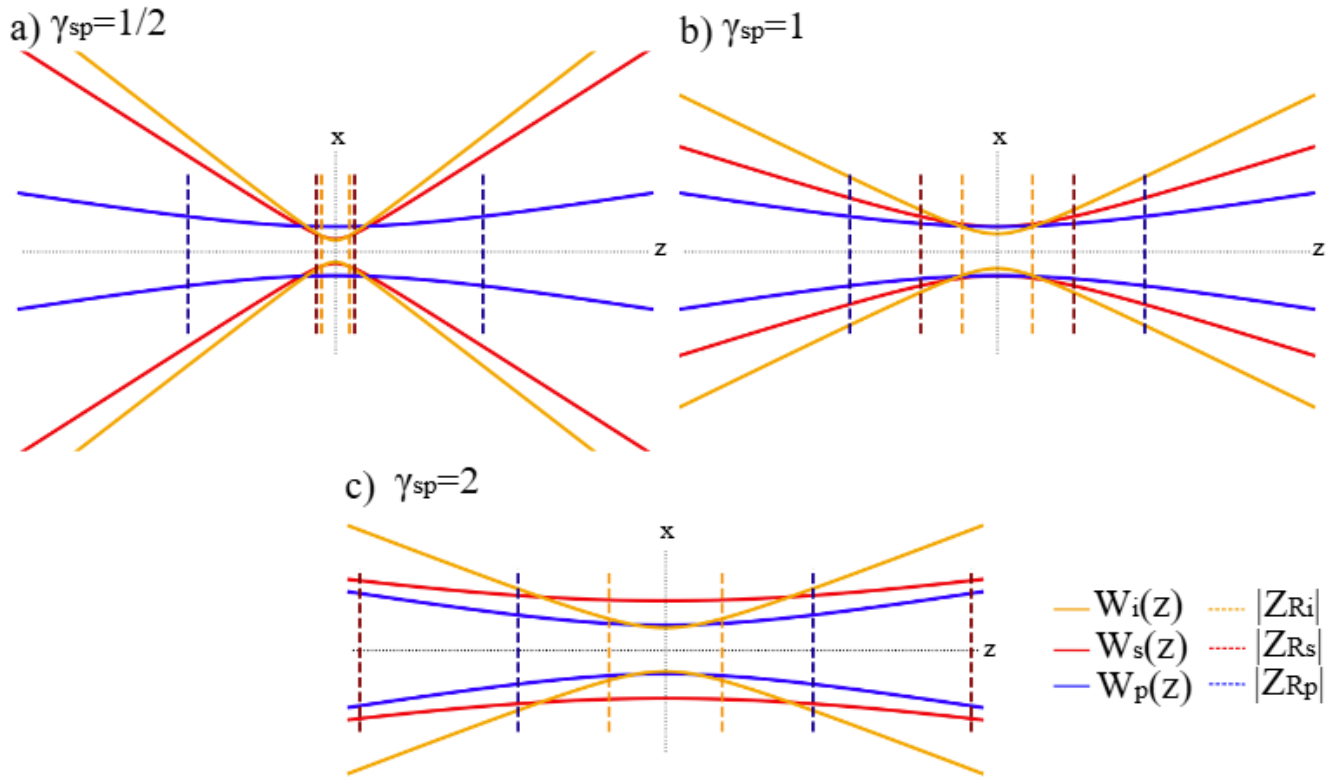
How to plot?

Important things to consider

1. Know your audience

Important things to consider

2. Identify your message



Important things to consider

3. Adapt the figure to the Support medium

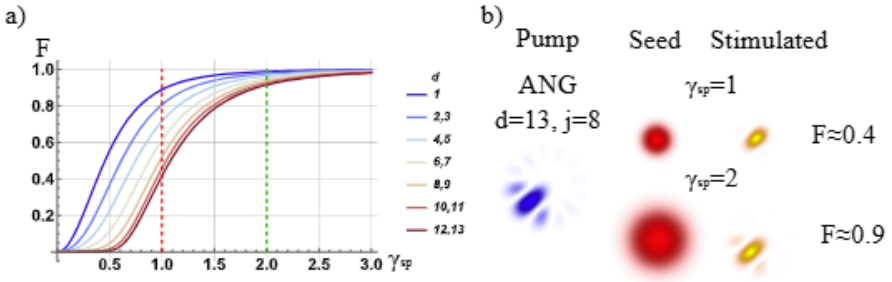
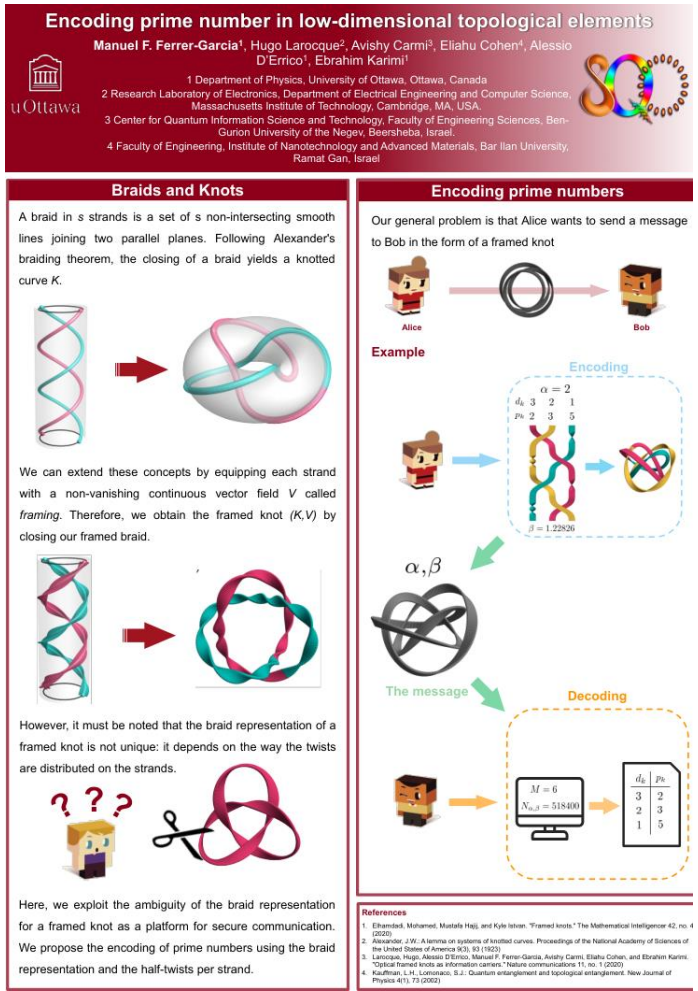


Fig. 5. (a) Fidelity plots of stimulated beams calculated using Equation 14 for ANG beams with $d \in [1, 13]$ as function of γ_{sp}. Notice that the fidelity decrease for higher dimensions. The red and green dashed lines indicate $\gamma_{sp} = 1$ and $\gamma_{sp} = 2$ respectively, corresponding to the experimental measurements taken (See Fig. 8d.) (b) Intensity of pump beam with ANG structure with dimension $d = 13$ and modal number $j = 8$, Gaussian seed beam, and the resulting stimulated beam for $\gamma_{sp} = 1$ and $\gamma_{sp} = 2$.

Figure 5 shows the fidelity values for transferring ANG modes with different dimensions and modal numbers. Here, fidelity does not depend on the modal number j, but rather solely on the dimensionality of the basis d. The fidelity decreases as the dimensionality of the basis increases. This is because a larger dimensionality would require higher values of l in Equation 13, which increases the size of the transverse spatial distribution for each basis element, thus decreasing the overlap between the seed beam and the pump ANG modes. However, for a fixed dimension, all the basis elements are composed of the same OAM modes, while what changes is the intermodal complex phase of the superposition. Therefore, the size of the transverse spatial distribution remains the same for different modal numbers. As a result, every element within the same basis will have homogenized fidelity as a function of γ_{sp}.

Thiw analysis was carried out assuming that the spatial mode intended for transfer is embedded in the pump beam. This remains applicable in the scenario where the seed beam has a non-trivial complex amplitude profile while the pump beam is Gaussian beam. In this specific case, the stimulated beam corresponds to the complex conjugate of the seed beam's spatial profile as seen in Eq. 1.



Important things to consider

4. Captions are not optional

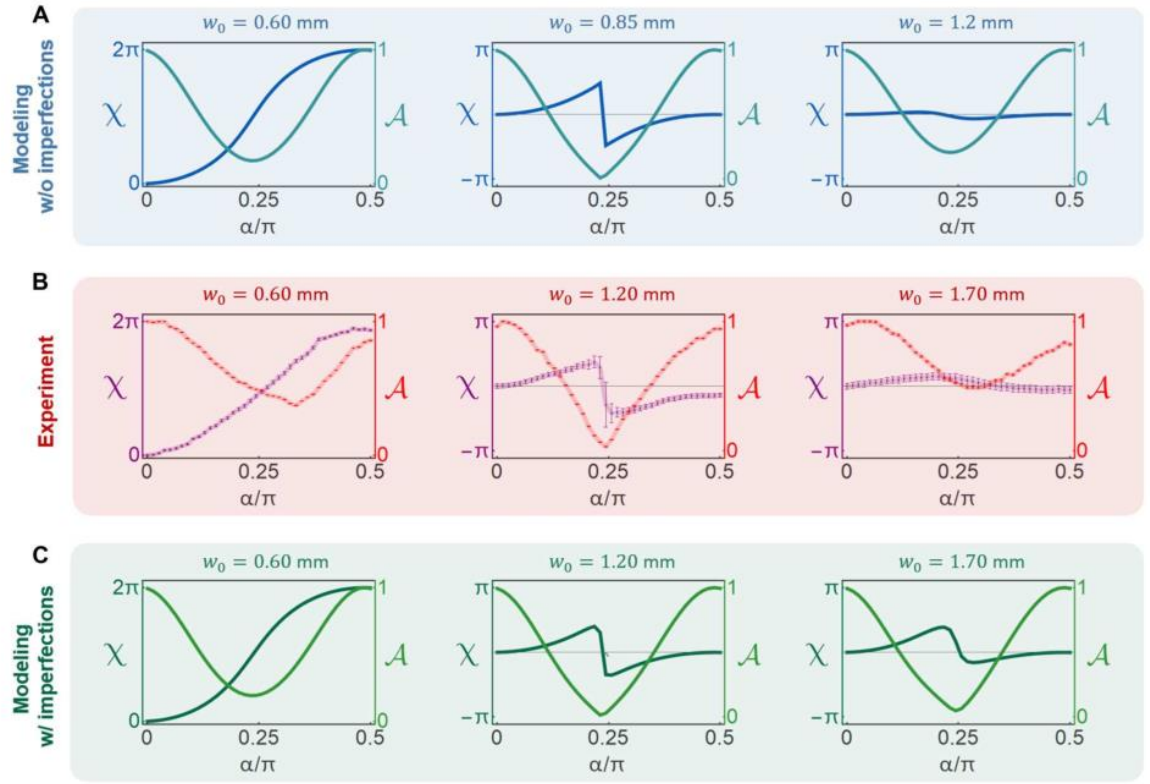
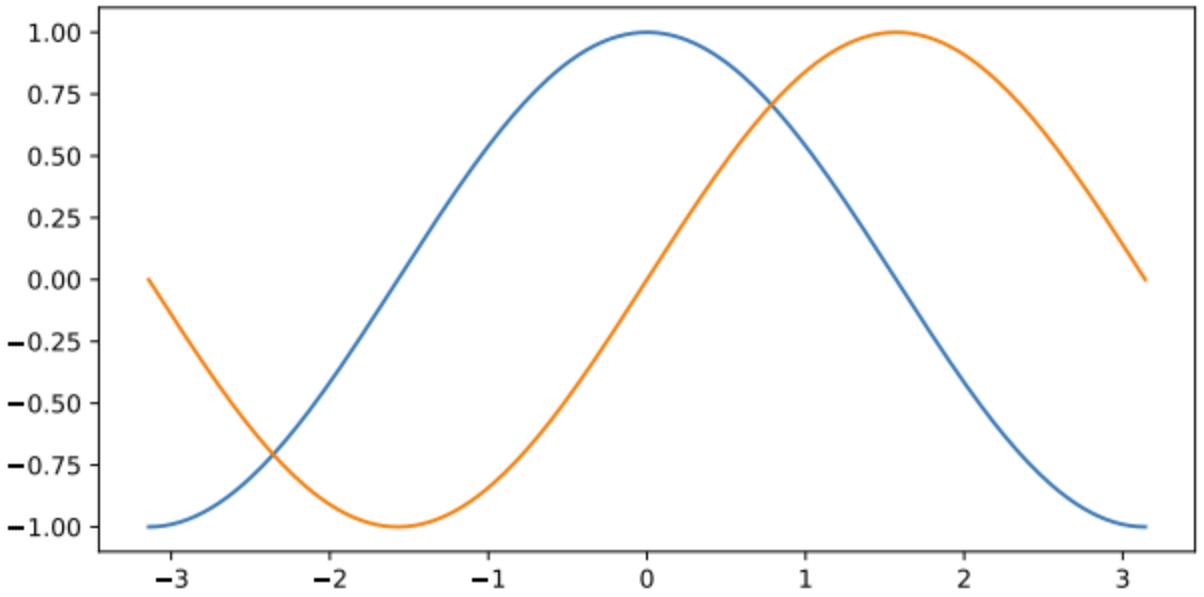
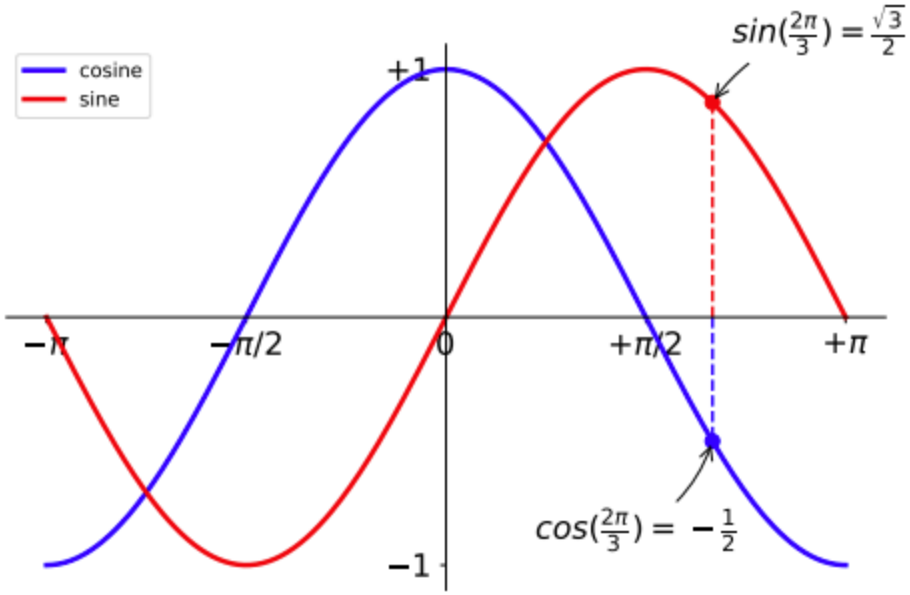


Fig. 3. Experimentally measured and theoretically simulated geometric phase. Topological transition in the measurement-induced geometric phase χ(α = θ/2): (**A**) theoretical modeling, (**B**) experimental results, and (**C**) modeling incorporating the imperfection of the birefringent crystals. The plots show the phase χ(α) and the interference contrast $\mathcal{A}$. The left column corresponds to a narrow beam (small w_0, strong measurement) and features Δχ = 2π. The right column corresponds to a large beam width (weak measurement) and exhibits Δχ = 0. The middle column represents a point close to the transition: The phase χ(α) exhibits a sharp change near α = π/4. The sharp change of the phase coincides with the vanishing of the interference contrast, which renders χ(α) ill-defined and enables the topological transition.

Important things to consider

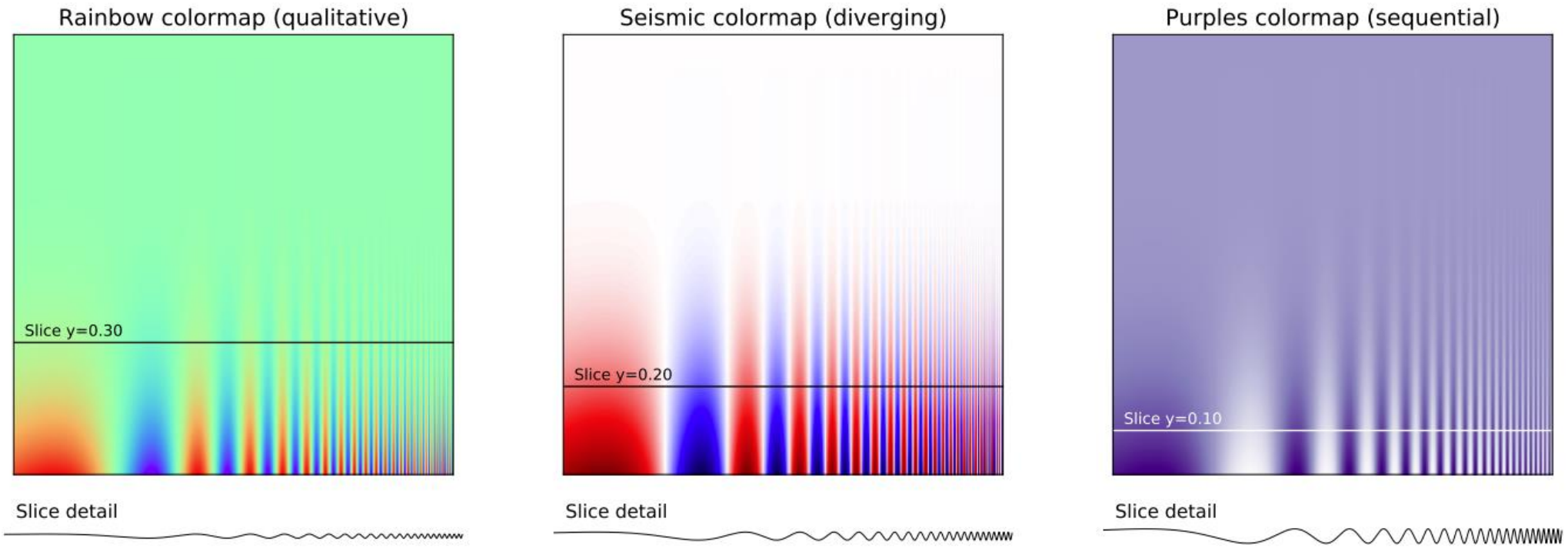
5. Don’t trust the defaults





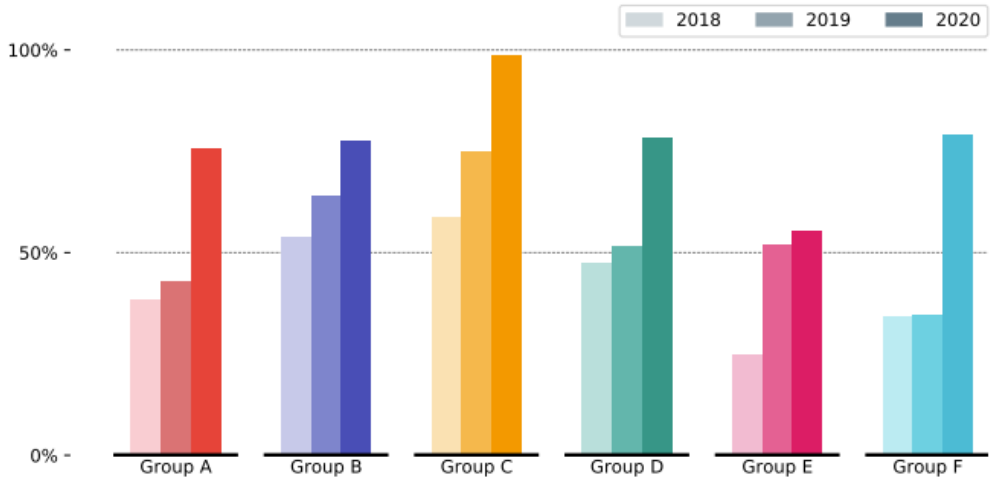
Important things to consider

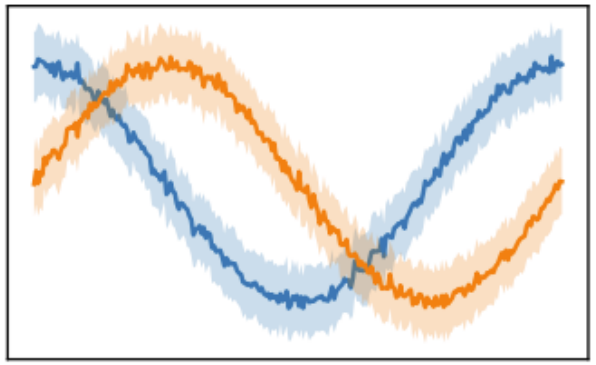
6. Use color effectively

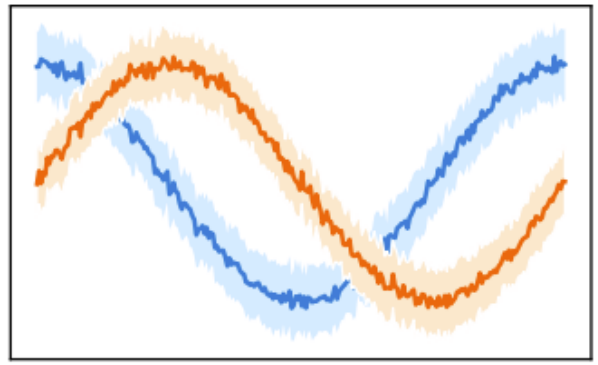


Important things to consider

6. Use color effectively

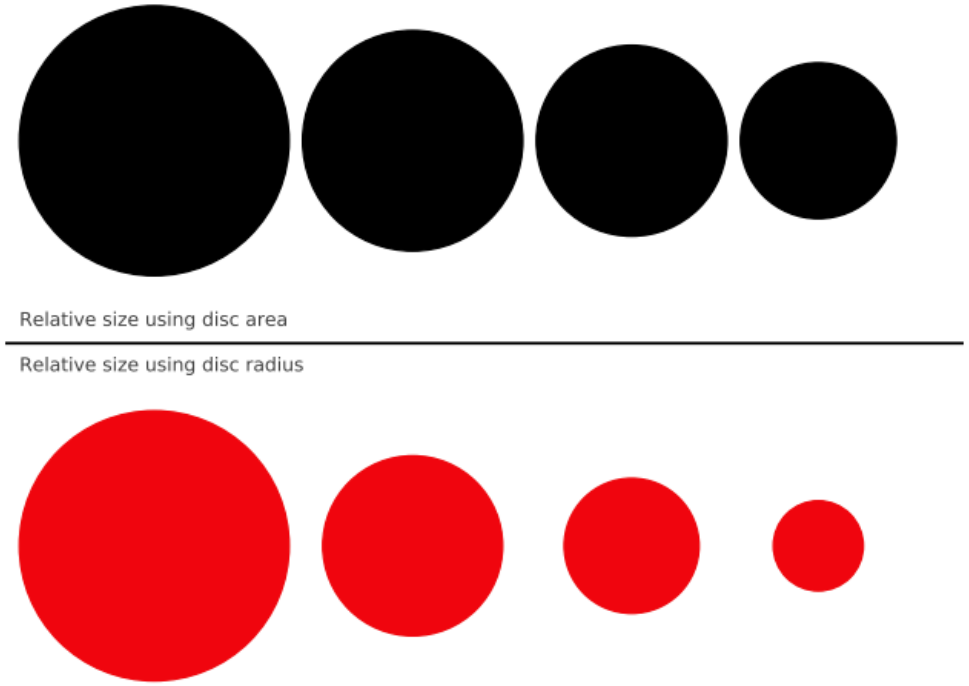


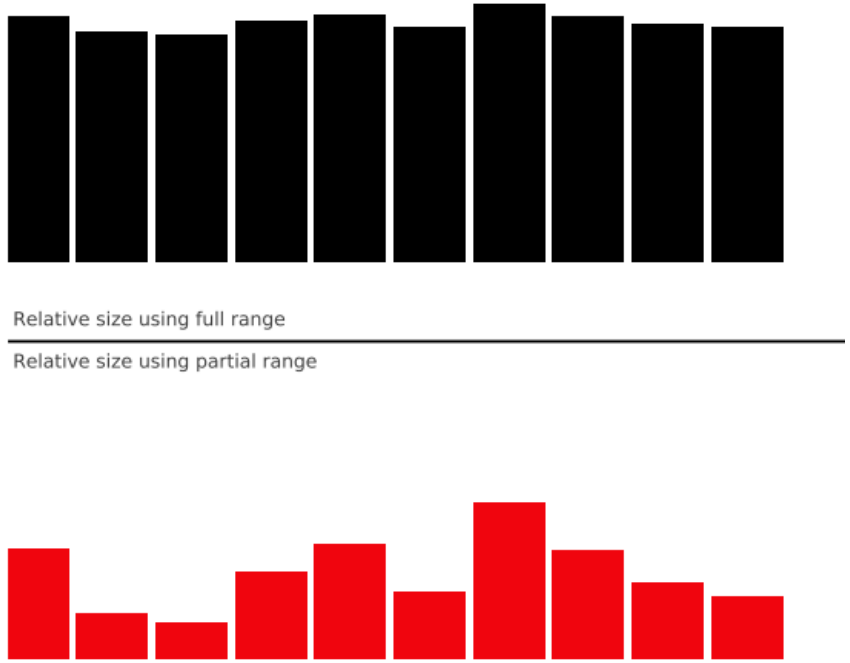




Important things to consider

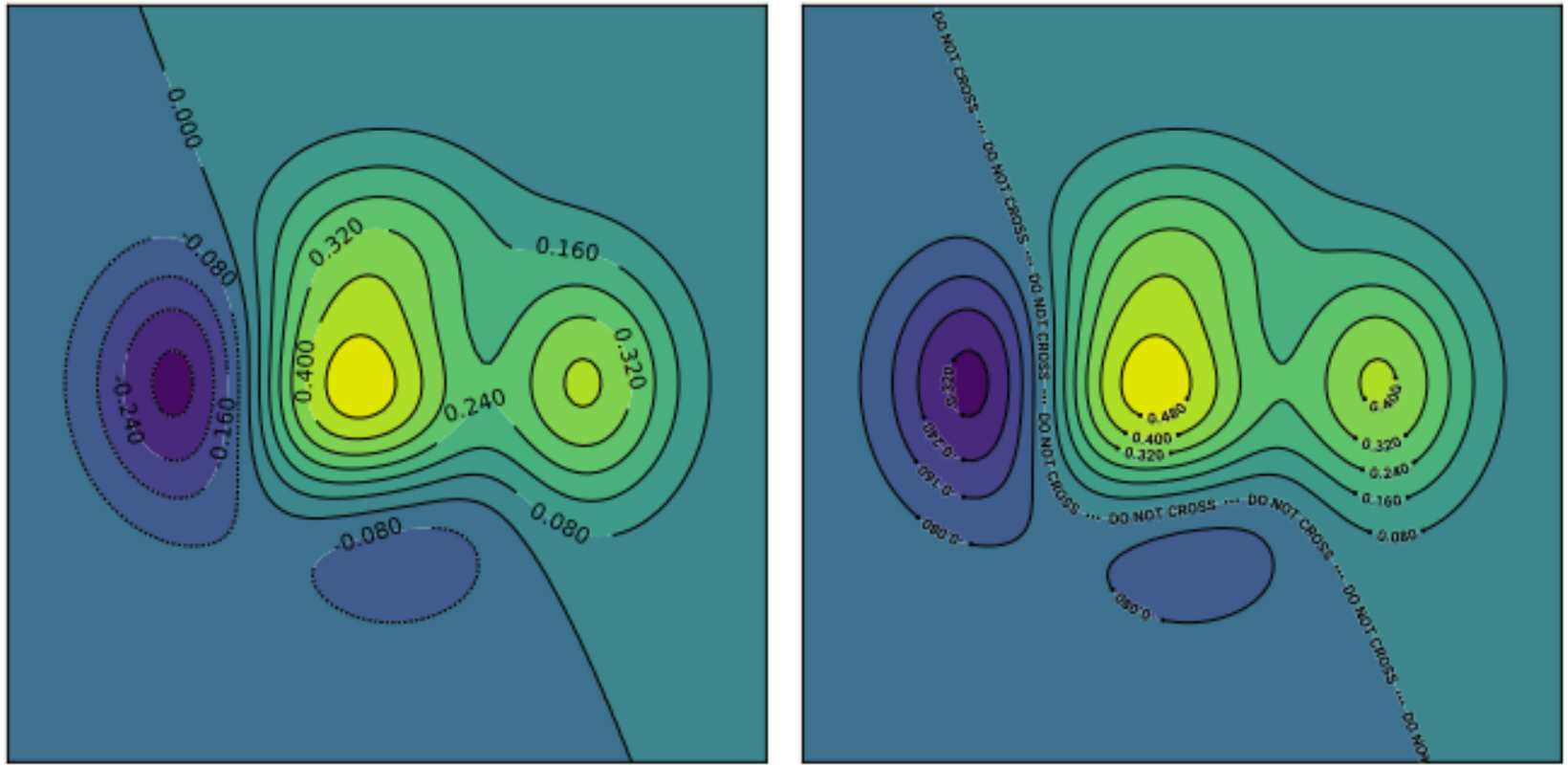
7. Do not mislead the reader





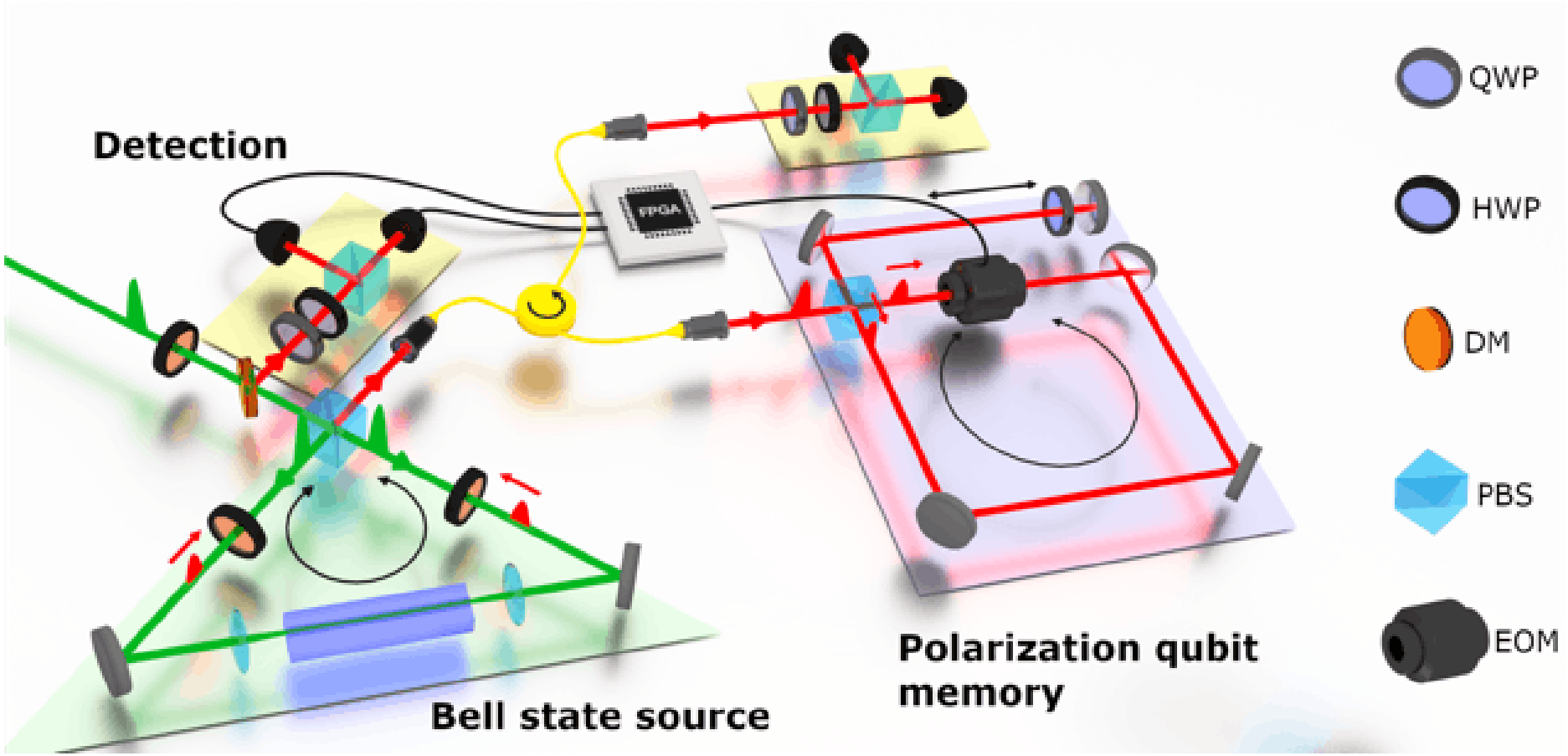
Important things to consider

8. Avoid Chartjunk



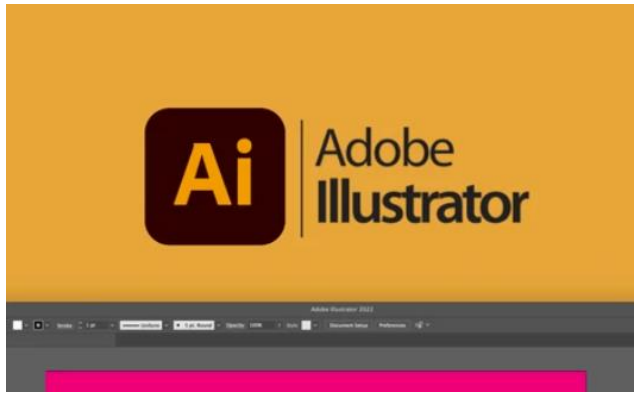
Important things to consider

9. Message trumps beauty



Important things to consider

10. Get the right tool



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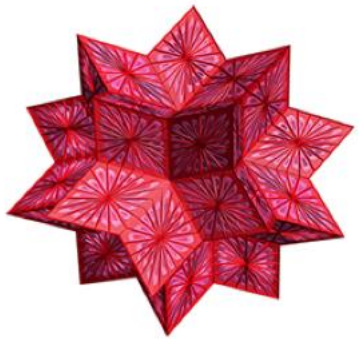
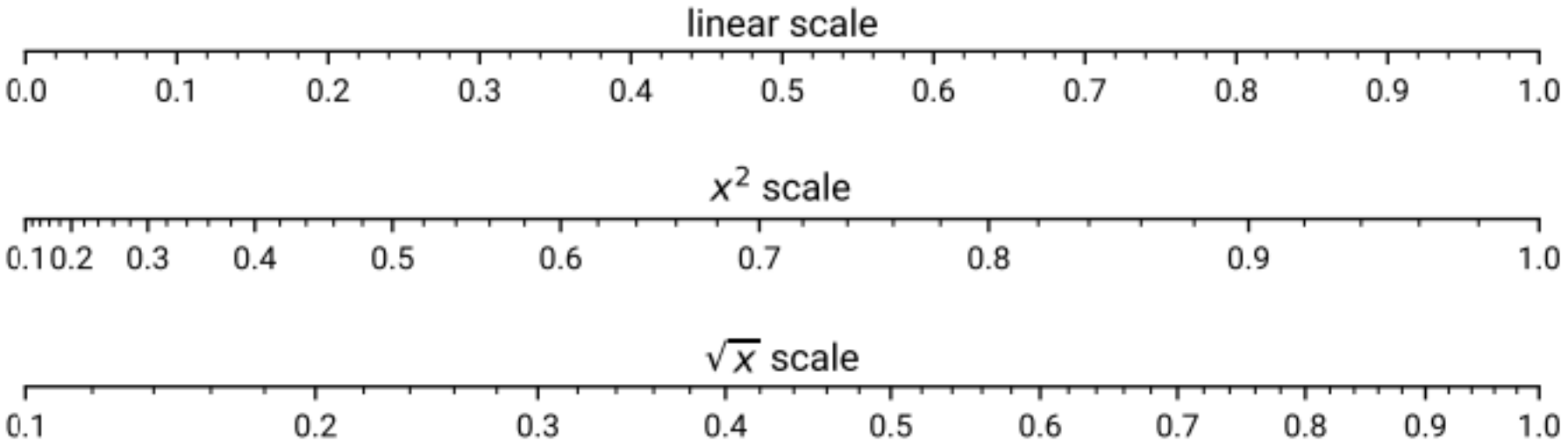


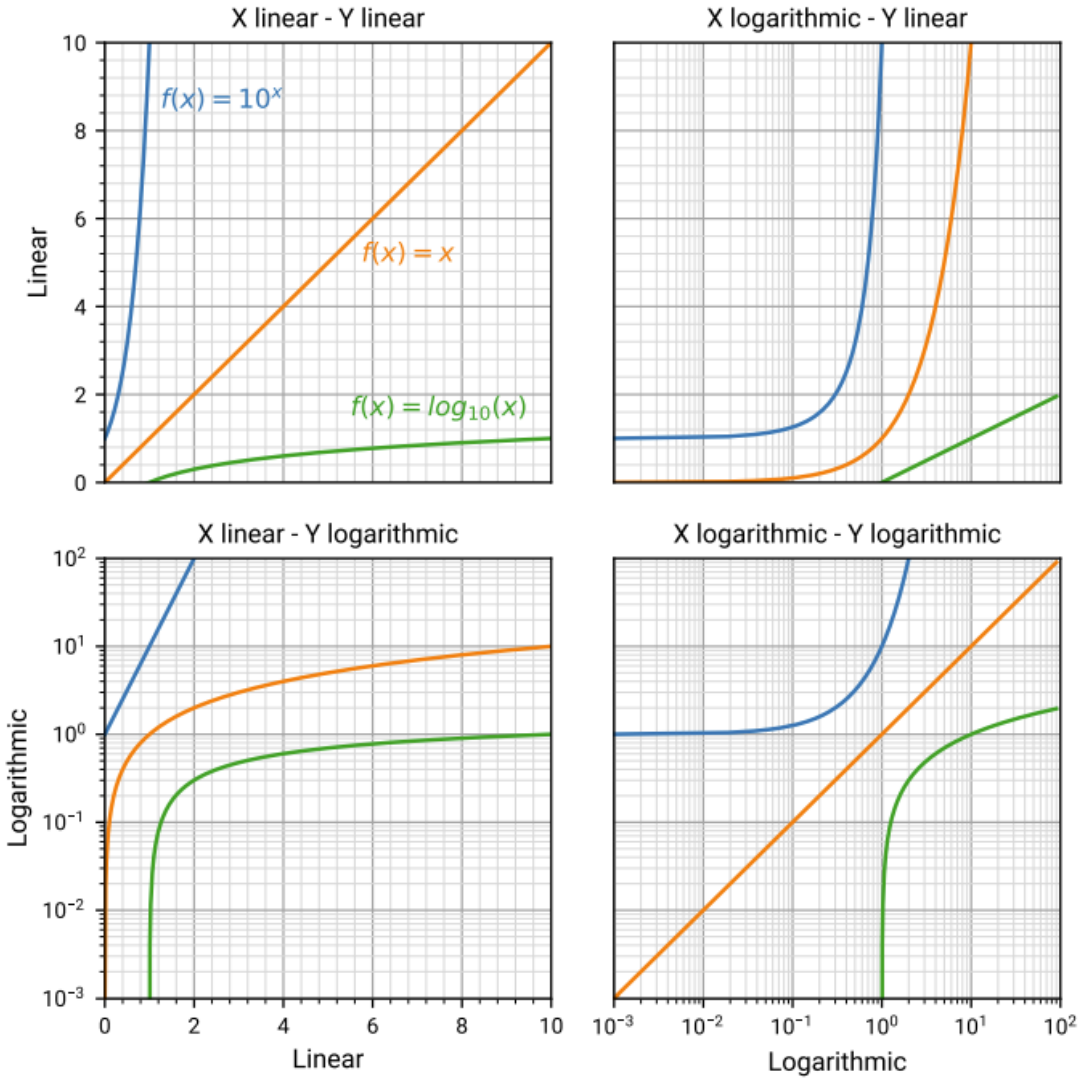
Important things to consider

Scales



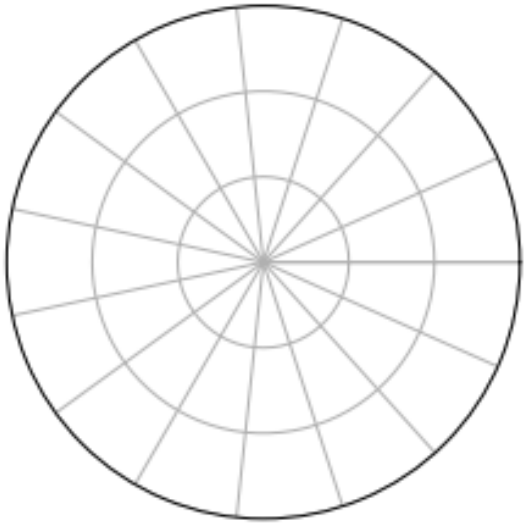
Important things to consider

Scales



Important things to consider

Symmetries



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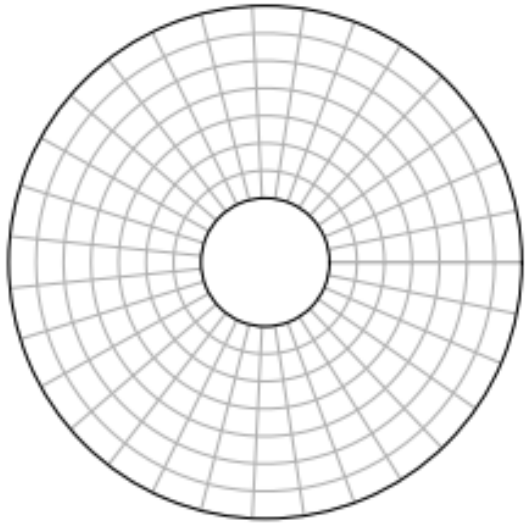
$t_{min} = 0.00, t_{max} = 360.00$



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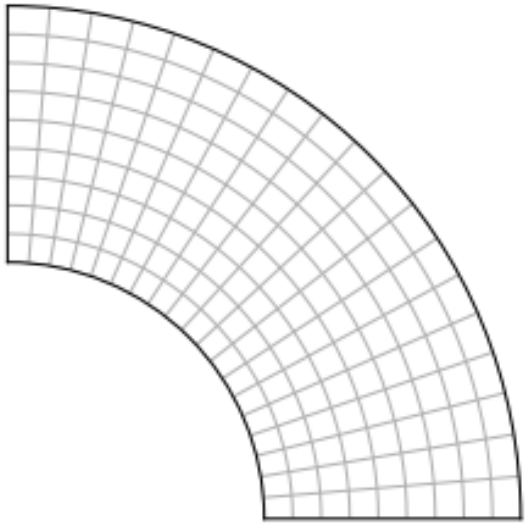

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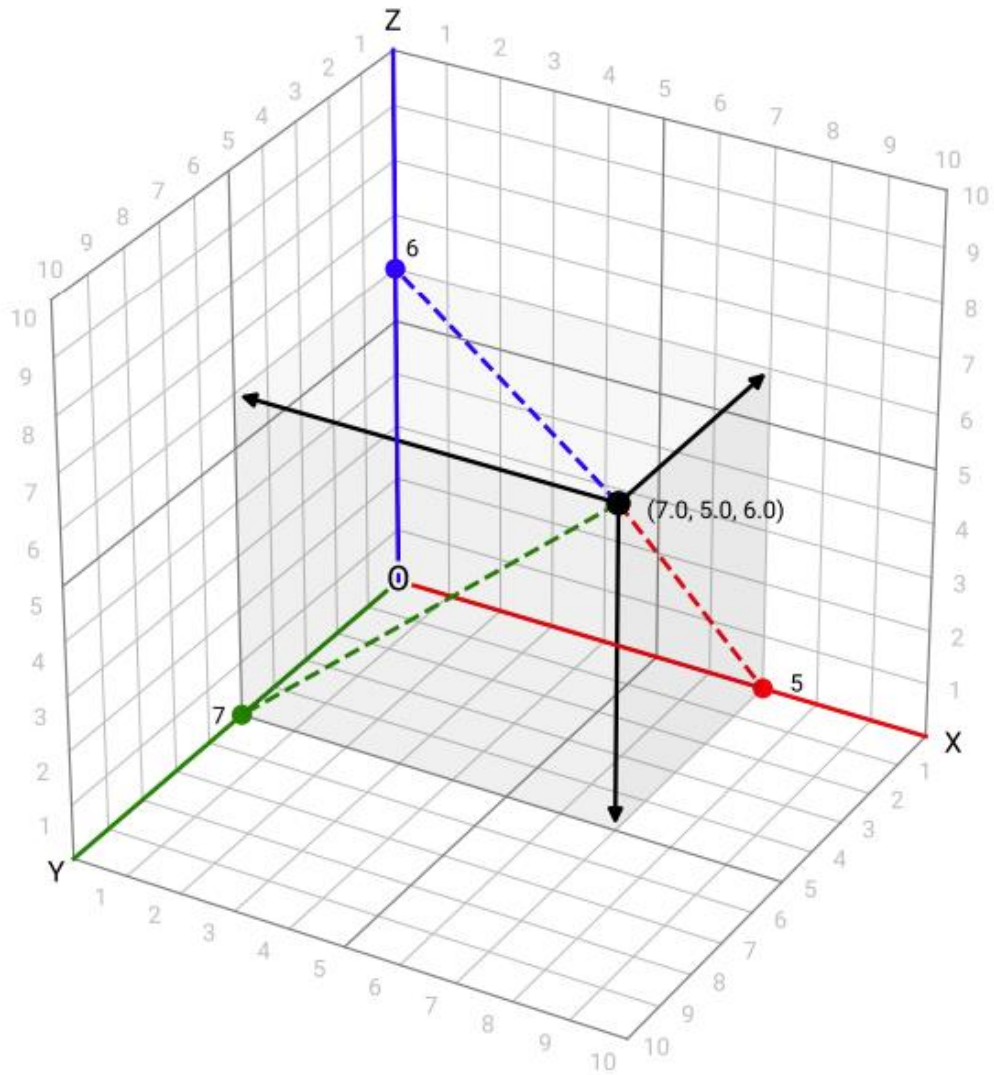
Important things to consider

Symmetries



Important things to consider

Font

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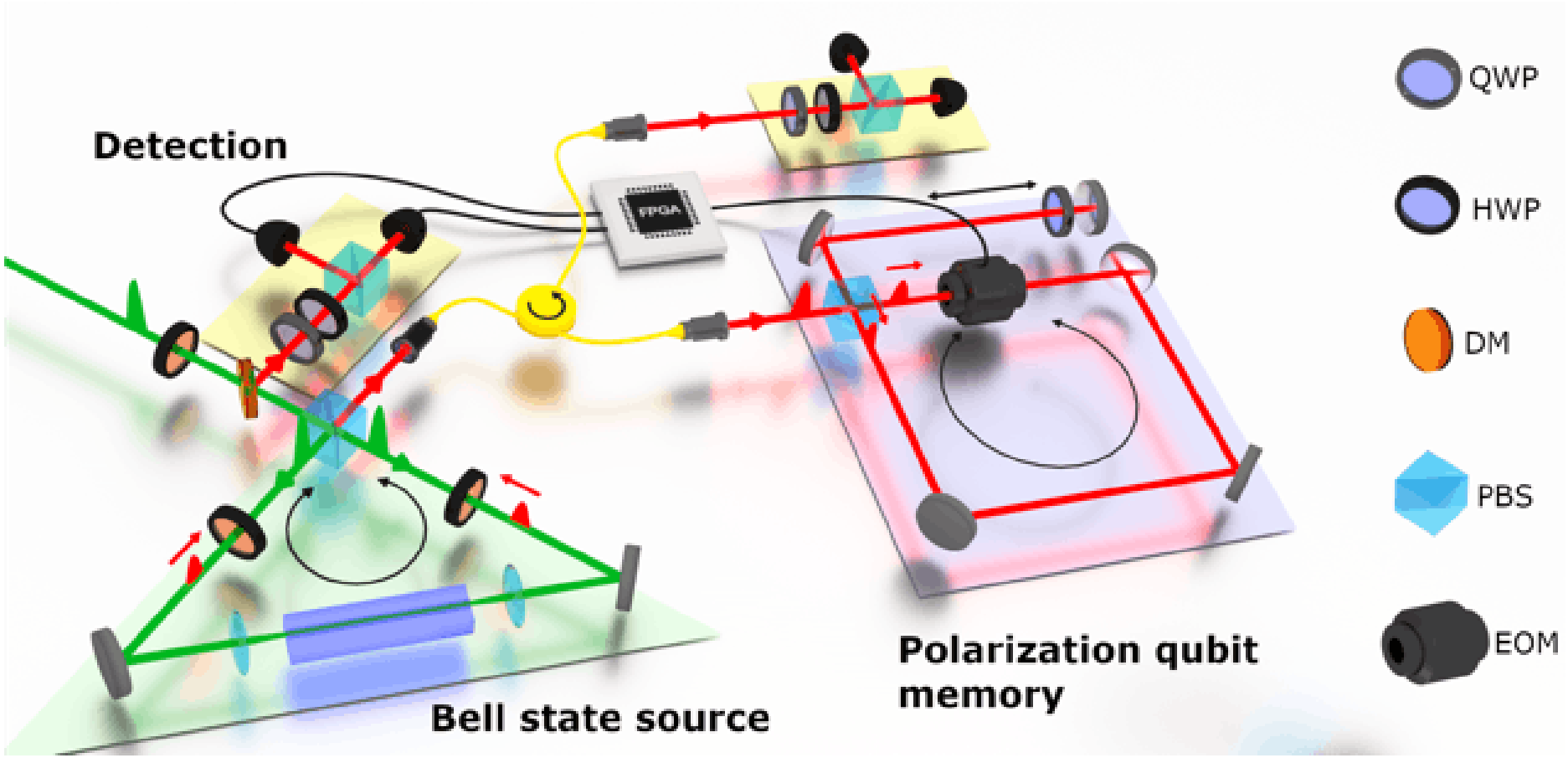
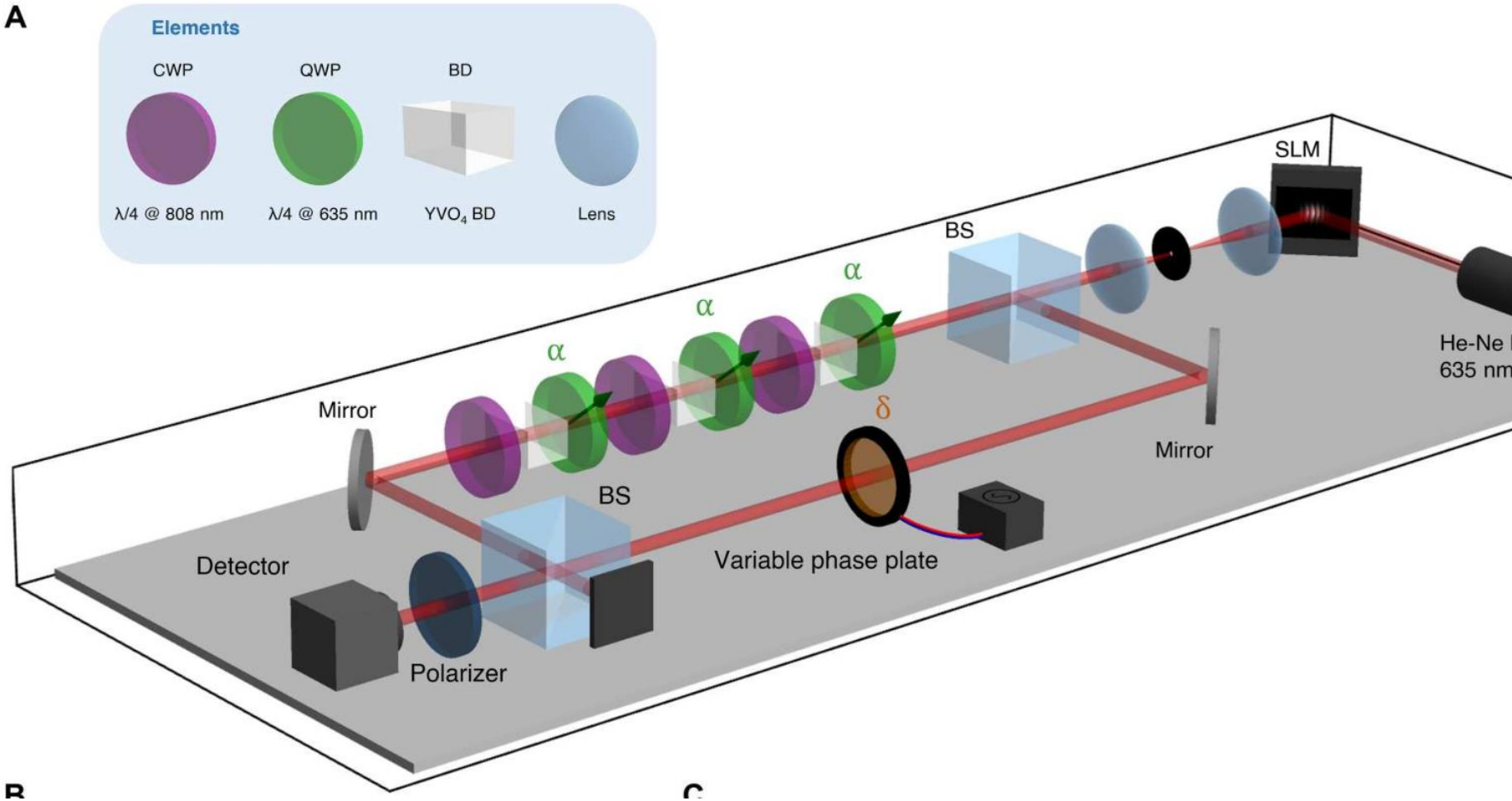
Serif RobotoSlab-Regular.ttf	Sans RobotoCondensed-Regular.ttf	Monospace RobotoMono-Regular.ttf	*Cursive* Merienda-Regular.ttf
Serif SourceSerifPro-Regular.otf	Sans SourceSansPro-Regular.ttf	Monospace SourceCodePro-Regular.ttf	*Cursive* ITC Zapf Chancery.ttf

Experimental setups



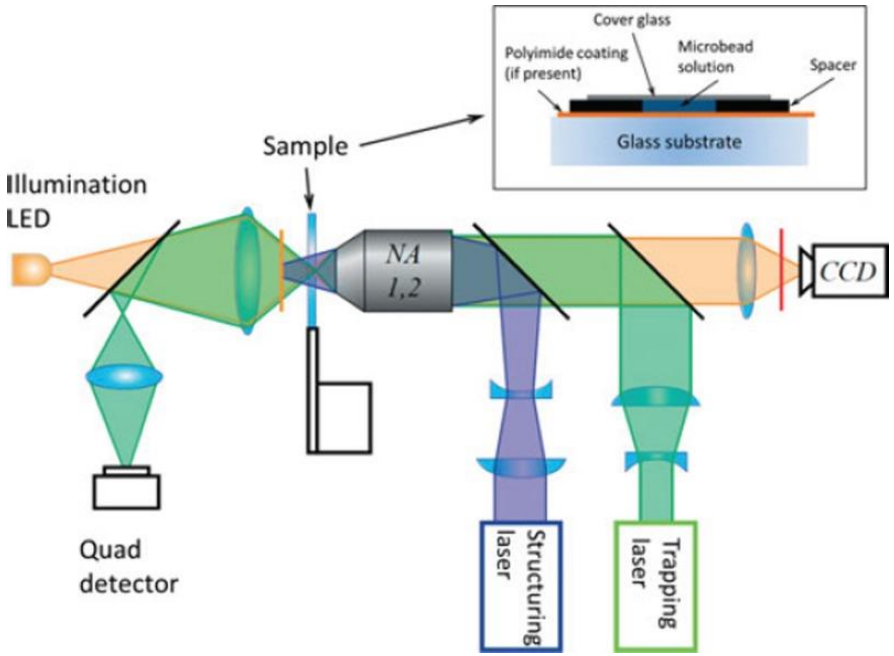
Experimental setups

- **ALWAYS** indicate elements!!!
- Properties of the beam!
- Use a box if it

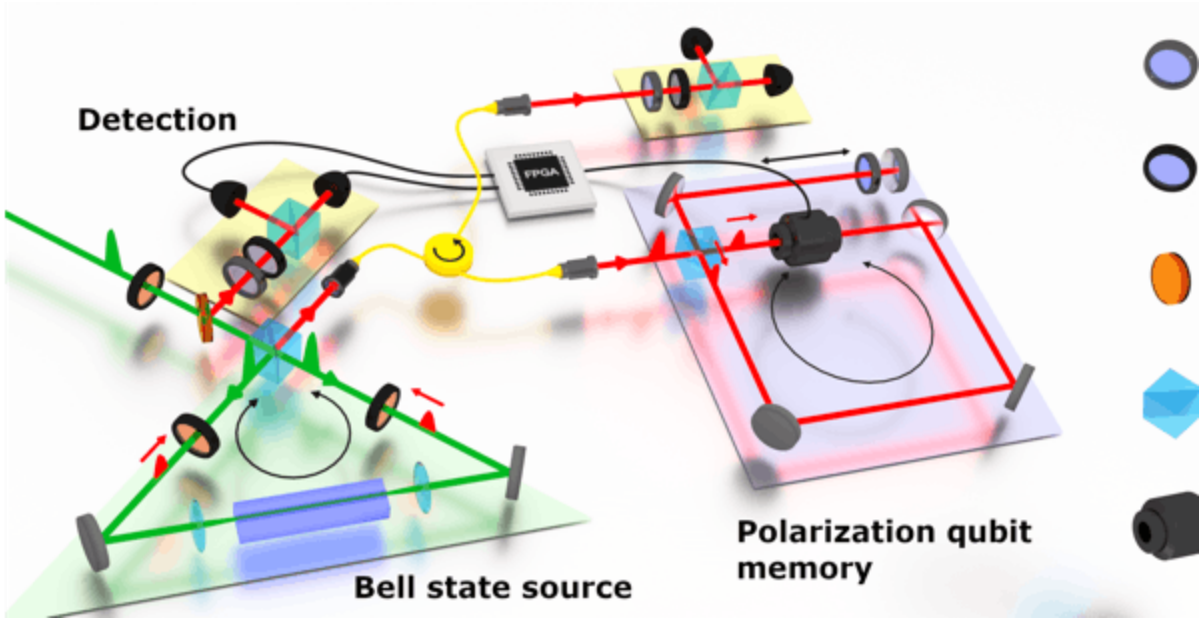


Experimental setups

2D?

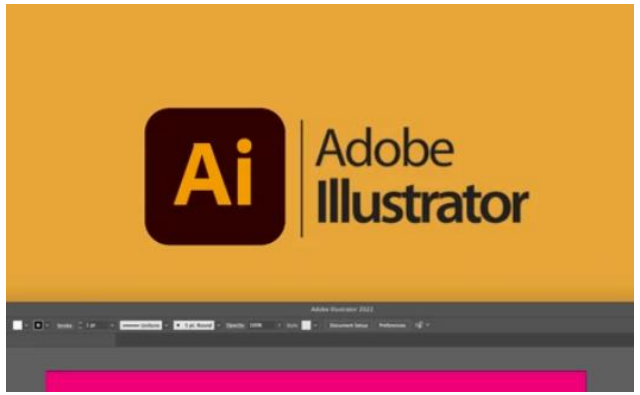


3D?



Experimental setups

Which software?



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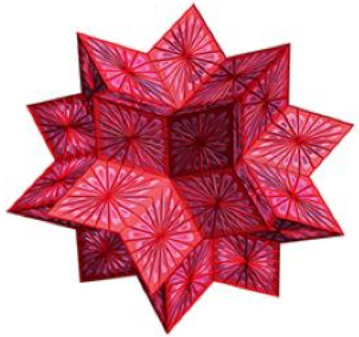

Experimental setups

Resources

1. https://www.gwoptics.org/ComponentLibrary/
2. https://github.com/amv213/ComponentLibrary
3. https://github.com/fruchart/tikz-optics
4. https://github.com/mffg1993/OpticsSetupsDictionary