Q: How did you pick the data? What to include and exclude?

A: The data was generated using the algorithms described

Q: Did you draw on any particular sources to help decide on which data to use

A: Habara – sampling from critical points of symmetry

Q: How do the properties of NbSe2 differ from other substances used in twistronics (graphene)

A: As a transition metal dichalcogenide with a hexagonal lattice its very similar to graphene, the main electronic properties that it has as a monolayer is its strong spin orbit coupling – separating the bands by a few hundred meV

Q: Confidence in the results

A: many approximations are made, but the results show that in principle relative interlayer twist and tunnelling perturbations result in a drastic difference to the electronic states. The fine details are up for debate, especially the flat electronic bands that I show, as with the approximations made they will be less accurate.

Q: Research could lead to semiconductor applications: How – what properties?

A: look up some other citations for similar materials. Main thing is experimental feasibility. And possible superconductivity, its all a new field so –

Q: maths questions – missing fourier transform derivation, quick description would help. Basics of condensed matter – tight binding model and band structure, how do they work

Q: other approaches to the problem?  
A: Density functional theory is the other main method used in the field currently

Q: next steps? Given 6 more months what would you tackle next what would you be looking for by doing that

A: primarily the next steps would be to expand the model to reduce the impact of the approximations made – so adding a second ring of k’ tunnelling points and finding correct fitting parameters for the tunnelling potential gaussian and implementing it. Futher improvements would provide a more detailed model of the interlayer tunnelling potential but I’d need to spend some time getting up to date with the quantum involved.

Q: Revise condensed matter physics, ask Crampin some select questions about things…