Notes on the quantum of thermal conductance

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NCN@Purdue Tool Support

We have identified a list of tools for which we commit the following level of service:

- monitor support tickets, questions, and wishlists and provide a response within one business day.
- fix simple bugs within a week.
- move long term projects and tool improvement requests to a public wish list.

The overall support structure and philosophy of the NCN and nanoHUB is [described in a different page](#).

NCN@Purdue Supported Educational Tools

- [ABACUS](#) is our "Assembly of Basic Applications for Coordinated Understanding of Semiconductors" consistent of 10 different tools supported by [Introduction to Semiconductor Devices](#) that provides tool overviews, and homework and project assignments for each of the covered concepts. All the tools in ABACUS are fully supported ([Crystal Viewer Tool](#), [Piece-Wise Constant Potential Barriers Tool](#), [Periodic Potential Lab](#), [Band Structure Lab](#), [Carrier Statistics Lab](#), [Drift-Diffusion Lab](#), [PN Junction Lab](#), [BJT Lab](#), [MOSCap](#), and [MOSFet](#)).
- [Quantum Dot Lab](#) enables users to study quantum dots in a simple effective mass model. The tool is powered by [NEMO 3-D](#) which can handle multimillion atom electronic structure calculations in full band models, rather than just effective mass models.
- [CNTbands](#) enables the analysis of electronic structures and Carbon Nanotubes and Graphene.
- [Resonant Tunneling Diode Lab](#) enables the study of resonance tunneling diodes with the [NEGF](#) formalism. This tool has some of the [NEMO 1-D](#) capabilities, yet it is currently limited to effective mass models.

NCN@Purdue Supported Research Tools

- [Abinit](#) provides a simple interface to the very popular community-based electronic structure code.
- [Bandstructure Lab](#) Computes the electronic structure of various materials in the spatial configuration of bulk (infinitely periodic), quantum wells (confined in one dimension, infinitely periodic in 2 dimensions), and wires (confined in 2 dimensions and infinitely periodic in the third dimension). The tool is powered by [OMEN](#), one of our NCN@Purdue tool intitiatives which create new advanced research tools.
- [OMEN nanowire](#) Simulate full-band 3D, real-space quantum transport in nanowire

structures. The tool is powered by [OMEN](), one of our NCN@Purdue tool intitiatives which create new advanced research tools.

Links to: Tools, Questions and Answers, and Wishlists

Users may post questions or send support tickets where they essentially ask for new features in tools or suggest improvements. With the limited resources we have available we want to manage these tool suggestions publicly. The table below links to each supported tool, its questions, and its wishlist.

Tool	Questions	Wishlist	
[Abacus]()	[Questions]()		[Wishes]()
[Crystal Viewer Tool]()	[Questions]()		[Wishes]()
[Piece-Wise Constant Potential Barriers Tool]()	[Questions]()		[Wishes]()
[Periodic Potential Lab]()	[Questions]()		[Wishes]()
[Band Structure Lab]()	[Questions]()		[Wishes]()
[Carrier Statistics Lab]()	[Questions]()		[Wishes]()
[Drift-Diffusion Lab]()	[Questions]()		[Wishes]()
[PN Junction Lab]()	[Questions]()		[Wishes]()
[BJT Lab]()	[Questions]()		[Wishes]()
[MOSCap]()	[Questions]()	[Wishes]()	
[MOSFet]()	[Questions]()	[Wishes]()	
[Quantum Dot Lab]()	[Questions]()		[Wishes]()
[CNTbands]()	[Questions]()		[Wishes]()
[Resonant Tunneling Diode Simulation with NEGF]()	[Questions]()	[Wishes]()	
[ABINIT]()	[Questions]()	[Wishes]()	
[OMEN Nanowire]()	[Questions]()	[Wishes]()	

Other NCN@Purdue Tools

[Nanoelectronics]() is the focal point of the research performed at Purdue University. A variety of NCN@Purdue contributed tools are listed on the [Nanoelectronics]() page.