

# My years at ETH

01.09.2011—today

Lei Wang



**Lei Wang**

August 30, 2011 at 5:46 AM

WL

To: Matthias Troyer

See you in Zurich

Dear Prof. Troyer,

I am Lei Wang from the Institute of Physics, Beijing. I am very honored to have the opportunity to work with you and your prestigious group members.

I will arrive in Zurich on September 1st. I am eager to start my work and life in Switzerland. See you soon!

All the Best,

Lei Wang  
Institute of Physics  
Chinese Academy of Sciences  
[wanglei@aphy.iphy.ac.cn](mailto:wanglei@aphy.iphy.ac.cn)



**Matthias Troyer**

August 30, 2011 at 8:14 AM



To: Lei Wang

Re: See you in Zurich



Dear Lei Wang,

Will you arrive on the 1st or already the day before? I unfortunately have to go to the US for a week on short notice on the 1st. Tama Ma can help you get settled and started. I hope to see you as soon as possible.

Matthias

On 30 Aug 2011, at 05:46, Lei Wang wrote:

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# Year 1: Cold atom DFT



“Apply DFT to ultracold atoms”

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“Apply DFT to ultracold atoms”



“Here is the xc functional,  
you are welcome!”

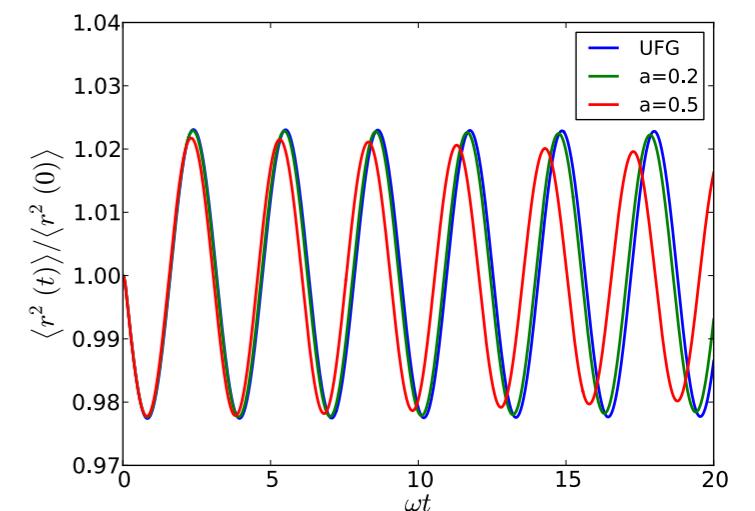
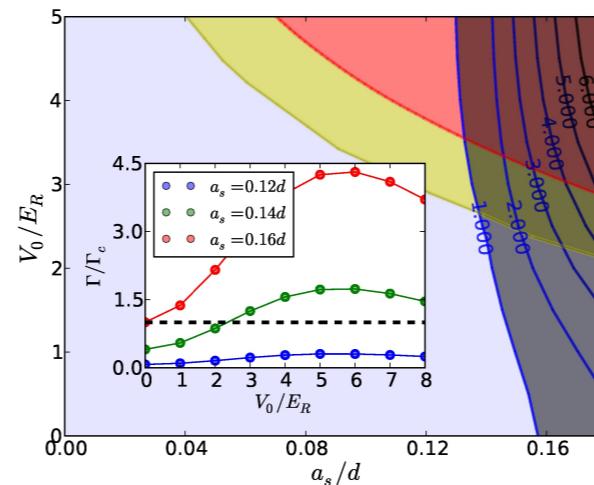
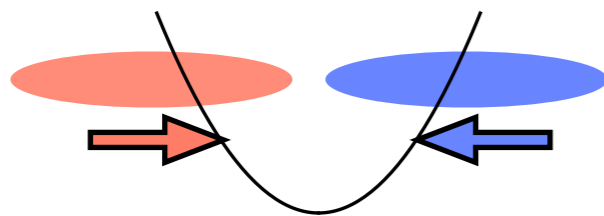
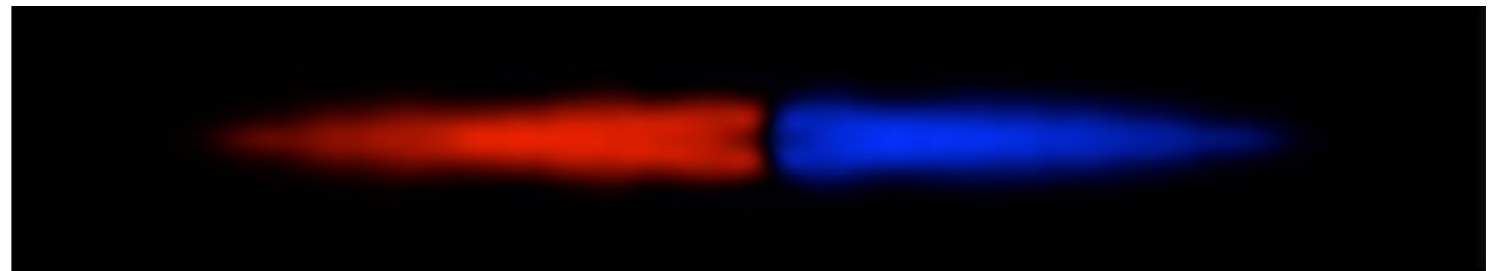
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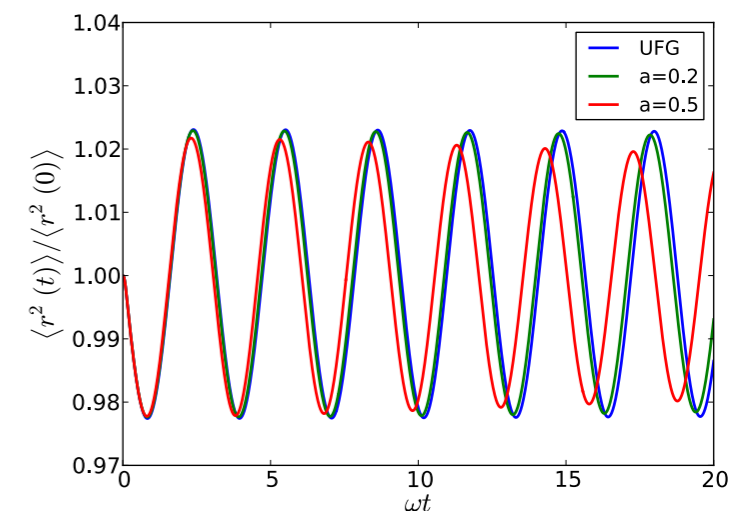
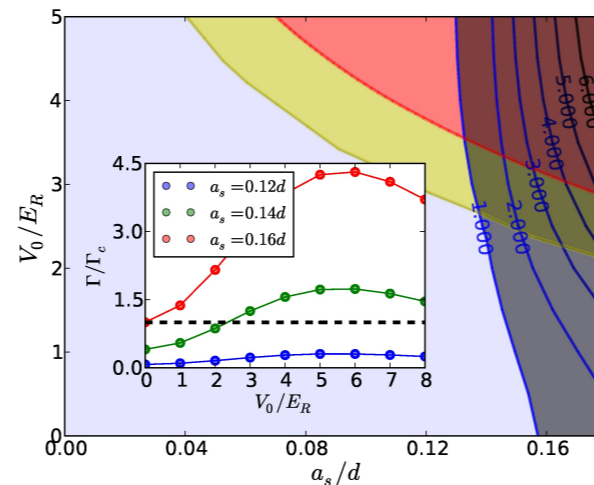
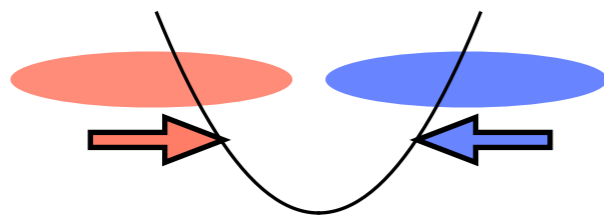
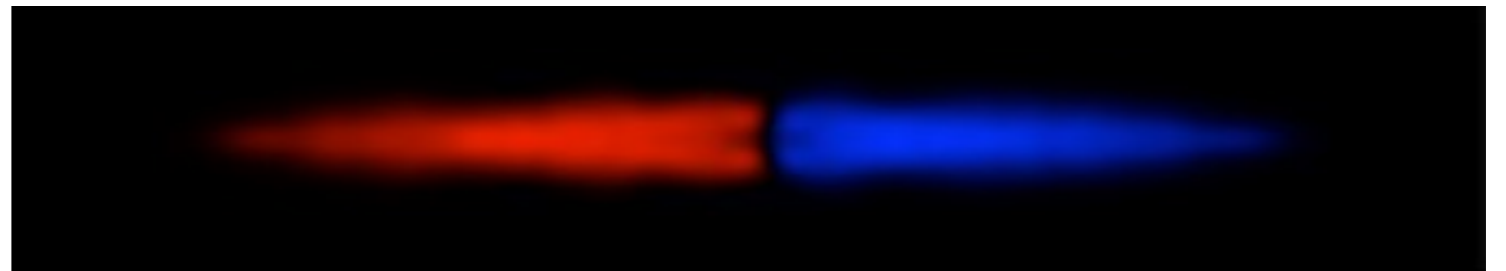
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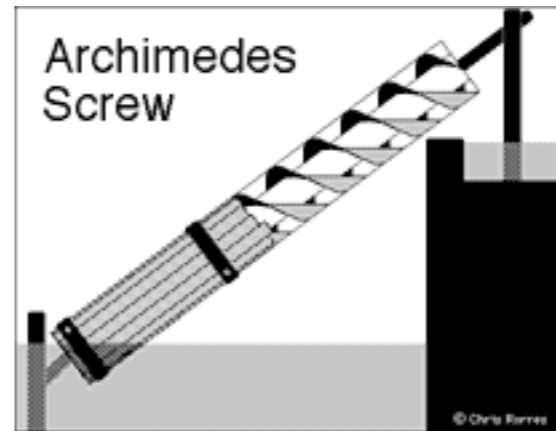
“Garbage”



# Year 2: Pumping



“How about build a topological pump for ultracold atoms?”

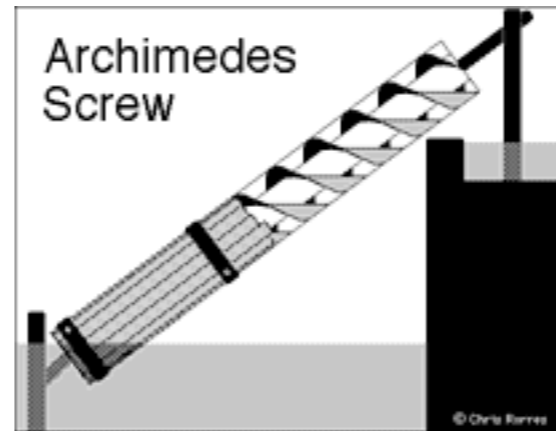




# Year 2: Pumping



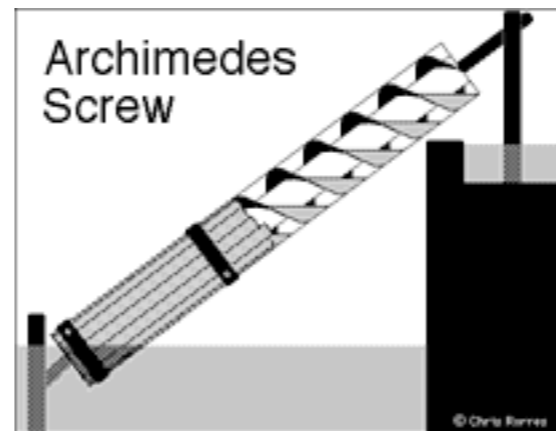
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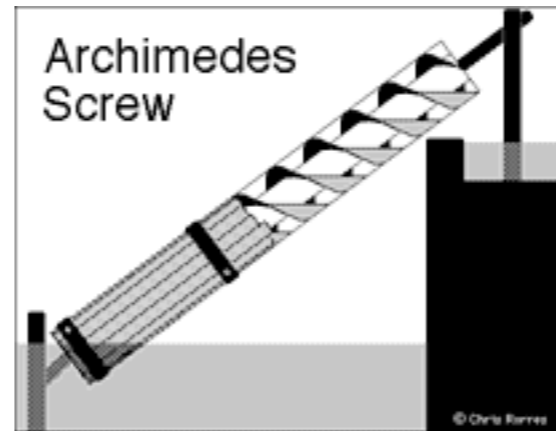


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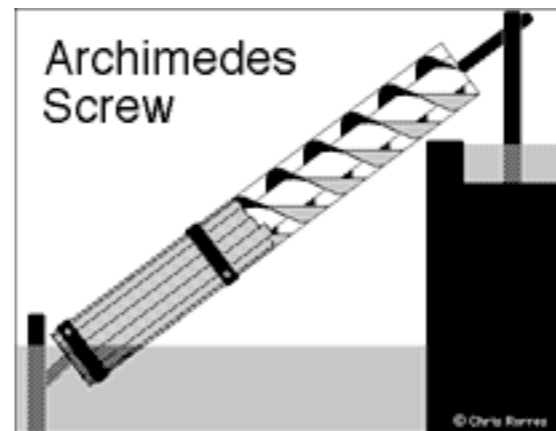
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Lesson 1: Opportunity lies in the interface

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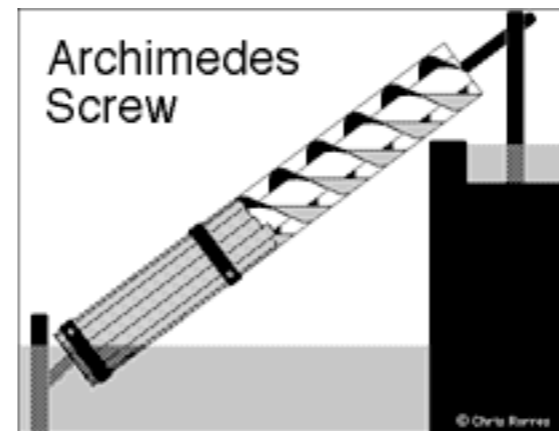
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Lesson2: Talk to your boss/colleagues

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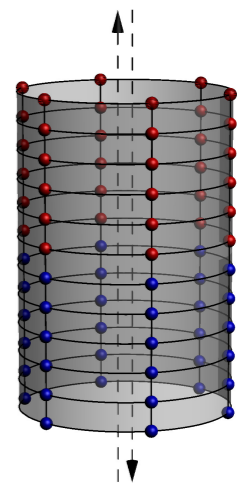
Lesson1: Opportunity lies in the interface

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Lesson3: There is no waste of time

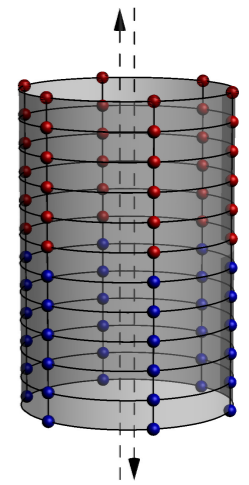
# Year 3: QMC

“Topological pumping is great,  
I’d like to do more of it.”



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[arXiv.org](#) > [cond-mat](#) > [arXiv:1311.0034](#)

Condensed Matter > Strongly Correlated Electrons

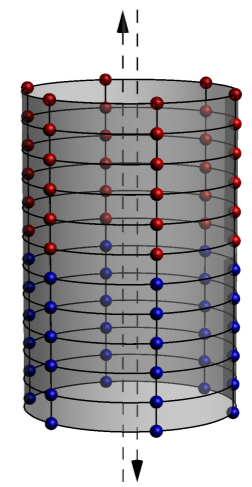
## **Solution to sign problems in half-filled spin-polarized electronic systems**

[Emilie Fulton Huffman](#), [Shailesh Chandrasekharan](#)

*(Submitted on 31 Oct 2013)*

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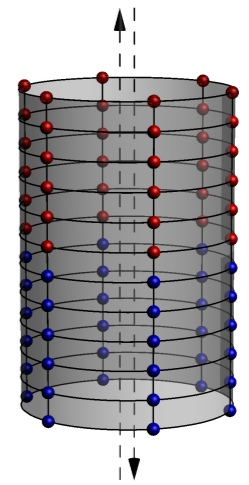
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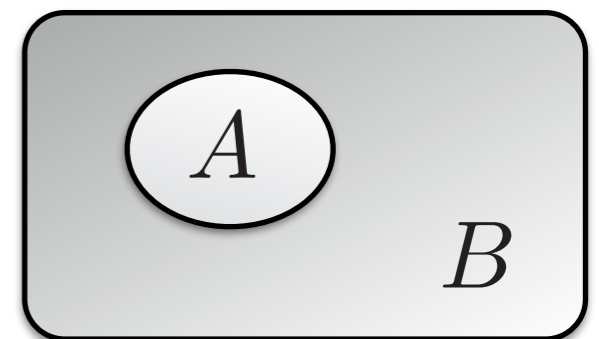
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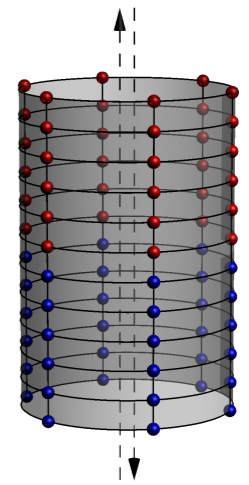


“Now I have this nice CT-QMC code,  
what else can I do with it ?”



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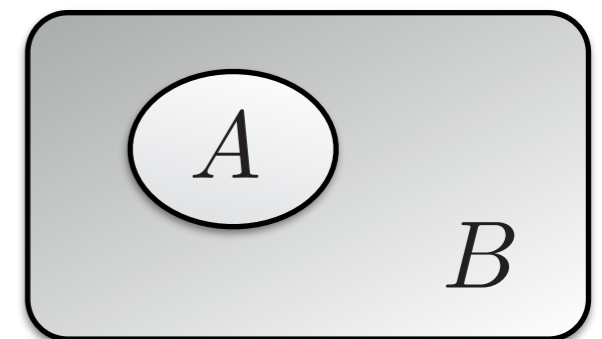
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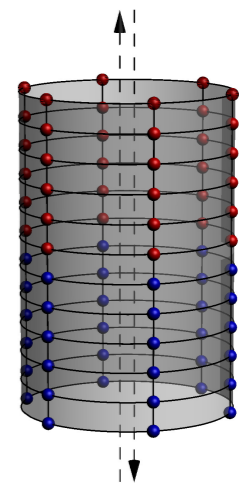
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Lesson4: Life is like a box of chocolates...

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Lesson4: Life is like a box of chocolates...

Lesson5: Always bring new insights/techniques when  
shifting to a new field

# Year 4: More QMC

“My CT-QMC code is slow...”

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“I have a nice trick to make it linear scaling!”



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“Any other advantage of LCT-QMC?”



fidelity susceptibility

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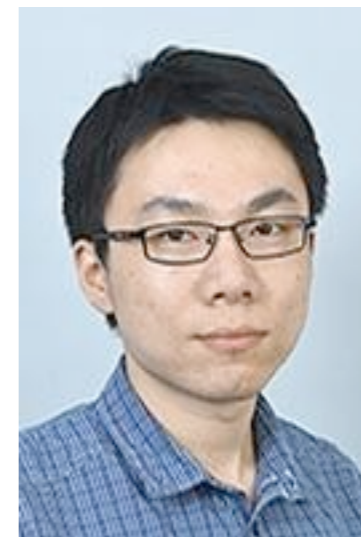


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fidelity susceptibility



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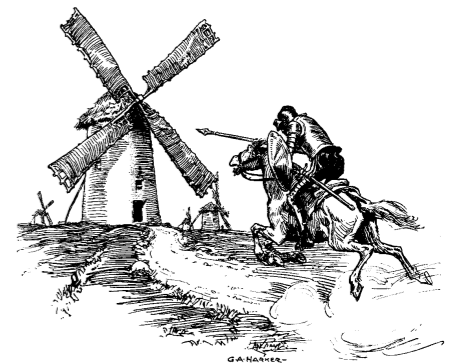
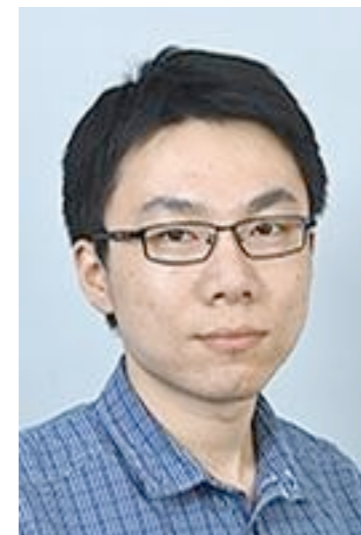


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fidelity susceptibility



Lesson6: Faith and persistent



Thank **all of you** and  
goodbye!