

# My Personal Journey with Uwe-Jens

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Uwe-Jens with Rebecca in Aspen

I first met Uwe-Jens when I went to MIT  
for my first postdoc in 1995.

He had joined MIT as a young assistant professor in 1994

I thank him for giving me the opportunity!

Being fresh out of my PhD I was looking for new things to learn!

I was trained in “traditional” lattice QCD  
and did not know much beyond that.

I learned about many new topics from Uwe-Jens

Examples: quantum spin models, world-line formulations, cluster algorithms, sign problems, perfect actions, ...

I remember often feeling overwhelmed in the evenings by how much there was to learn.

But the next day, as I started discussing physics with Uwe-Jens, I would feel hopeful and energetic again.

The two years I spent at MIT were some of best years of learning physics, thanks to Uwe-Jens.

All those who have had Uwe-Jens as their mentor would most likely feel the same.

Almost every topic of my research today is based on seeds of ideas that Uwe-Jens gave me as a young post doc at MIT.

One of the most important thing that I learned from him is to think about problems from your own perspective and be brave about it!

I think both of us like to think “Out of the box”

Highlight two of our results:

Quantum Link Models

Meron cluster solution to fermion sign problems

## Quantum Link Models

Quantum spins allow us to recover asymptotic freedom of two dimensional classical spin models.

Spin-ladders rather played an interesting role in this.

Uwe-Jens had this “Out of the box” idea: Could we do the same with classical gauge links.

That was the birth of quantum links and the D-theory.

## Merlon cluster solution to fermion sign problems

1993: Bosonization and Cluster Updating of Fermions

1995: meron-cluster solution to the  $O(3)$  model with  
the topological term

1999: Meron-cluster solution to the fermion sign problem.

2008: Fermion bag approach



Uwe-Jens has also been a great friend with whom I have shared several memorable times



On a hike in Aspen





With other members of the “gang” in Aspen





With Rebecca and Christina



With Rebecca and Christina

On most of our hikes the discussions involved not only traditional physics, but also speculative esoteric ideas!

We have also discussed how the human brain can create emergent properties such as consciousness and free will.

I have also been touched by Uwe-Jens' kindness!

For example he invited my student Emilie Huffman to spend two semesters at Bern, when I was struggling to find funds to support her.

I know of other students who he has helped similarly!



We are here to celebrate Uwe-Jens incredible contributions!

I don't feel he is ready to retire because he has so much to offer

I wouldn't mind coming back and being mentored  
by him as his postdoc again even today!

I wish him many more years of productive years ahead,

and all the success in solving

some of the most difficult problems he wants to solve!