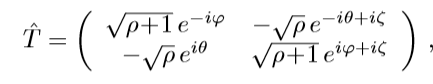
**Suslov B field**

**Introduction**

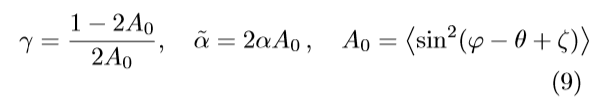
The Shapiro scheme used before runs into problems when B fields are present because it relied on a generalization of the 1D scaling equation. But a 1D scaling equation doesn’t feel a B field. So…we need to effectively generate a 1D scaling equation from his previously derived GDMPK equation.

**Simplest Scheme**

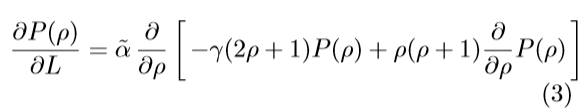
See [9,10] for relevant numerical work, which he says compares favorably with his model. He says that we could start with new 1D general form:



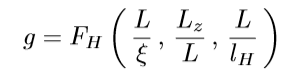
and an analogous microscopic model ΔT, and generate new 1D equation. We get same as before, with:



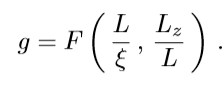
and find:



So the overall structure of the equation is unchanged. Of course in 1D, how could it be? But then from general considerations, we would seem to need:



and not,

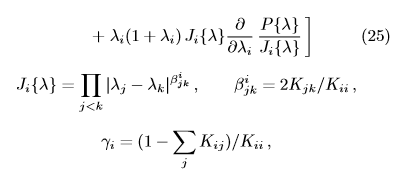


as we had in β = 1, and which seems necessary to describe transition in general, from single parameter scaling theory? But there seems a qualitative difference between the two: in Q1D we have the possibility of self-interesecting trajectories with non-zero A which will include effects of B field. But otherwise in 1D we do not. So does seem that 1D situation is missing a vital component. Says using the Shapiro scheme analogy as in β = 1 produces parameter identification issues.

**Generalized DMPK equation**

Will be generating results from his GDMPK equation and converting to an effective P(ρ) so we can insert it into the Shapiro scheme. So he uses his GDMPK,





and can make the identifications. He says that for Q1D, equivalent channels looks reasonable. So can say:



so that resolves the problem of needing sufficient set of parameters. He says the parameters will be in one-one correspondance:



**Evolution equation for P(ρ)**

Asserts, as usual, that we need to employ the semi-transparent boundaries, and take the limit of weak transparency. In that case we have roughly,



Now we want to make a change of variables in the GDMPK equation. We’ll let the new variables be ρ, and {φ1,φ2,…,φN-1} ‘angular’ variables. And say:





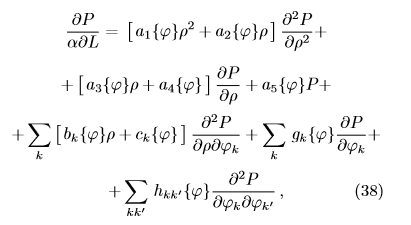
And so,



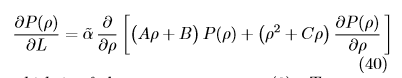
where



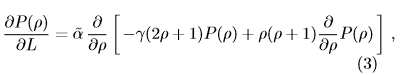
Basically using dimensional analysis, working out to order 1/ρ he concludes:



and then IBP on the angular variables, obtains an equation of the form,



as compared to the 1D equation:



Then he says that ambiguity of the conductance formulas means that ρ is undefined up to some constant shift: ρ → ρ + ρ0, and if we substitute that form into the 1D equation



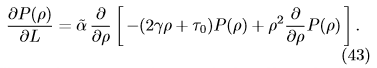
In the large ρ limit we have:



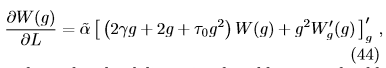
and considers this basically identical to the usual 1D form…

**Transition to the d-dimensional case**

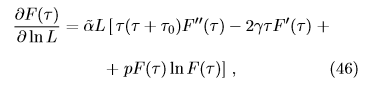
Seems we’re going back to the Shapiro scheme. Provisionally accepting the Q1D characteristic function evolution equation:



Then he changes variables to g = 1/ρ:



Then moving to N channels, the differential equation for the characteristic function is given by:



where, as before,



and he loosely equates . Makes comment about L increasing but ξ/L fixed. How does that happen? ξ kind of depends on L2 in Q1D. But this isn’t a real ξ? We’re at weak disorder in 3D? Sample is only localized because of z >> L. Shouldn’t ξ ~ ℓ in 3D? Then says:



how does z enter this equation at all? I thought we set z = L. Then in the limit, stationary solution is given by setting [ ] = 0. Refers us to previous paper pertaining to the analysis of this stationary point.

**Conclusion**

So concludes that PB(G,τ0,γ,p) = PB=0(G,τʹ0,γʹ,pʹ). So its same qualitative distribution; only difference the numerical values of those three parameters.

Reviews that <g> is augmented and <g>2 diminished by presence of magnetic field, in accordance with suppression of phase coherence.

Again says that he didn’t try to specify the statistical model to closely, for the purpose of nailing down these parameters. Instead, he says we just fix them by knowledge of <g>, and <g>2, say. But it would be nice to see what this would be.