

Random Tilings, Random Partitions and Stochastic Growth Processes  
September 01–06, 2008  
**Pavage aléatoire, partitions aléatoires et  
processus de croissance stochastique  
01–06 septembre 2008**

# Arctic curves for the domain wall six vertex model

**Filippo Colomo**  
INFN, Sezione di Firenze  
Via G. Sansone 1  
Florence (Sesto), Firenze 50019  
ITALY

web: <http://theory.fi.infn.it/colomo>  
email: [colomo@fi.infn.it](mailto:colomo@fi.infn.it)

## **Abstract**

The problem of Arctic Curves for the Domain Wall six vertex model is addressed by studying the emptiness formation probability (EFP). In the simplest case of the Free-Fermion point the behaviour of certain multiple integral representation for EFP in the scaling limit can be fully analyzed by means of standard techniques from Random Matrix Models, allowing to recover the well known Arctic Circle Theorem. The derivation shows the crucial role played by the “condensation” of saddle point solutions in correspondence to Arctic Curves. Assuming such correspondence to hold in general, we derive the arctic curve of the model for generic weights (albeit in the disordered regime).