

# Research project RGLIS 3733 - Branching random walks on Cayley graphs

## **Purpose of the visit**

Scientific collaboration with E. Candellero and L. Gilch at TU-Graz.

## **Description of the work carried out during the visit**

We studied random structures that arise from branching random walks (BRW) on free products of groups. In the case where the BRW is transient, the set of boundary points that is visited becomes of interest. Furthermore, we discussed a Shape-Theorem for the BRW. In order to prove the latter we started to show a Large Deviation Principle for random walks on free products of groups.

## **Description of the main results obtained**

We calculated the Hausdorff-dimension for the accumulation points of the BRW at the boundary. In particular, this shows that at criticality there is a discontinuity for the Hausdorff-dimension.

## **Future collaboration with host institution**

Sebastian Müller is going to continue the collaboration with the host institution. In particular, he is going to take part in an ERASMUS exchange between the TU-Graz and University of Marseille.

## **Projected publications/articles resulting or to result from your grant**

Branching random walks on free products of groups (in preparation)