

1. 11-14 March 2014: Course on “Introduction to Stochastic Programming” given by Gerardo Perez Valdés, a researcher from NTNU, in [University of Santiago de Compostela](#) .
2. 1-6 June 2014: three members of the group, Julio González Díaz, Francisco José González Diéguez and Ángel Manuel González Rueda, did a stay in NTNU. The aim of this stay was to enhance the knowledge about the stochastic algorithm developed by the research group on NTNU. They also attended to the [3rd Trondheim Gas Technology Conference \(TGTC-3\)](#) celebrated in Trondheim from 4 to 5 June 2014. In this conference they illustrated their initial mathematical techniques about gas transport network simulation and optimization.
3. From 23/06/2014 to 24/07/2014: Francisco José González Diéguez did a research stay at NTNU. During this stay the effort focused towards the study of the different possibilities for joint research on new mathematical models that might combine the methods in which the two groups are specialists. In particular, paying attention in the Branch and Fix Coordination algorithm (BFC) developed by the research group on NTNU in order to combine it with Ganeso (GAs Network Simulation and Optimization) tool developed by the research group on USC.
4. From 16/02/2015 to 16/05/2015: Ángel Manuel González Rueda did a research stay at NTNU. The aim of this stay was to develop some code trying to interface Ganeso with the BFC software. The main tasks that arise at this point which introduce some difficulties to the work can be mentioned:
  - Ganeso is implemented in Fortran 2003 while BFC is implemented in C++. Thus, it is necessary an additional effort to manage the different programming languages.
  - BFC has been developed to solve general stochastic problems, without an specific structure. However, Ganeso is only focused on solving gas transport networks.
  - The input required by BFC are mainly mps files while Ganeso uses xml files. Then, it is necessary to adapt both softwares to work with a common input data.
  - BFC uses some specific functions in order to establish a communication with the solver. Therefore, these functionalities have to be implemented in Ganeso in order to return to BFC all the information that the algorithm needs.