D-G. CHO, H-H. CHO, N-S. CHO, K-I. KANG. **Parametric modelling based approach for efficient quantity takeoff of NATM-Tunnels.** *Gerontechnology 2012;11(2):70;* doi:10.4017/gt.2012.11.02.531.00 **Purpose** As every construction project is quite different according to the type of construction, 3D-representations on design, estimation, construction, and management also need to be different[1]. While the 3D-approach has been widely applied to building projects, it has rarely been tested on large construction projects such as tunnels, mass transit systems, dams, highways, etc. Meanwhile, characteristics of NATM (New Austrian Tunnelling method) tunnel projects–including long-linear-simple shapes, cyclic-repetitive operations, and relatively small numbers of objects–are compatible with parametric modeling that can be supported by BIM-applications[2]. The purpose of this paper is to propose an efficient approach for quantity takeoff of NATM-tunnels, using parametric modeling. **Method** NATM-tunnel characteristics are described that should be applied to the 3D-modeling and technical requirements for parametric modeling functions toward obtaining efficient solutions. **Results & Discussion** Results from a pilot project (*Figure 1*) indicate that standardization on tunnel libraries, parameters, levels of detail, and parametric relationships can dramatically improve the efficiency of quantity takeoffs.

References

1. Lee G, Sacks R, Eastman CM. Specifying Parametric Building Object Behavior (BOB) for a Building In-formation Modeling System. Automation in Construction 2006;15(6):758-776; doi:10.1016/j.autcon.2005.09.009
2. Obergrieber M, Euriger T, Borrmann A, Rank E. Integration of Geotechnical Design and Analysis Proc-esses Using a Parametric and 3D-Model Based Approach. Proceedings of the 2011 ASCE International Workshop on Computing in Civil Engineering, Miami, USA; 2011

Affiliation: Korea University, Seoul, South Korea; *E:* bignine@korea.ac.kr
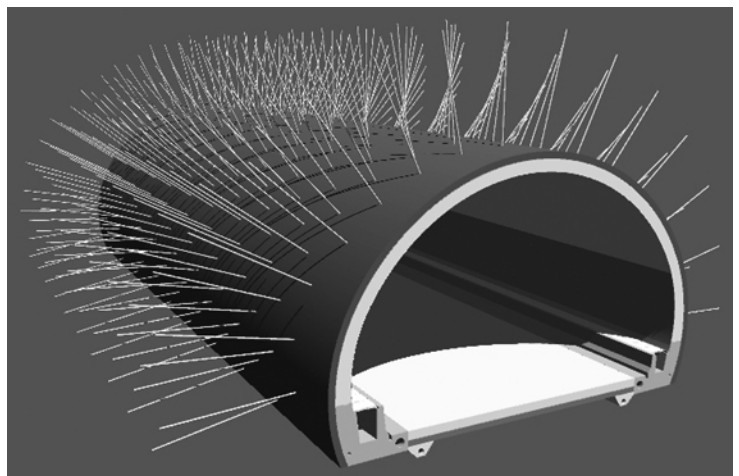
Figure 1. 3D representation of NATM-tunnel using Building Information Modelling for analysing required libraries