



Using Microwave technology to create a topographical image of the burden surface in a blast furnace, MEFOS

During the past decade radar technology for level measurements in a Blast Furnace has been established. In that respect radar technology is also used for determination of the burden profile in the furnace. In one case the burden profile is determined by a radar antenna, mounted on an axis, moving along the furnace radius. From this measurement the burden surface is assumed symmetric and an image of the surface is derived. Another approach to determine the burden profile is to use several radar units mounted along a radius in the Blast Furnace. In this case, the image of the burden surface is built up from a limited number of measuring points along the radius and again the final image is built from the assumption of burden surface symmetry. The described approaches require extensive mechanical modifications of the furnace to be able to operate properly which in a longer perspective also expose the applications to increased maintenance needs.

In this paper a novel approach to use radar interferometry technique to create a 3D topographical image of the burden surface will be described. By this approach the drawbacks of the presently used technologies used for burden surface determination are expected to be eliminated. MEFOS has tested an antenna unit that has the potential of measuring the full burden surface continuously during operation in the Blast Furnace and present the result as a topographical image of the burden surface or a 3D image. Trials have so far been performed on laboratory as well as in a full scale charging model with promising result.