

Abstract Submitted  
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**Modeling Guard Type LWD Tool with Comsol Multiphysics**

GARY NOE, BRIAN OETIKER, Sam Houston State University — Well logging is the process of determining the properties of rock after drilling a borehole into the ground in search of oil. Companies are developing sensors that are placed on the drill pipe so that the information is made available while drilling (Logging While Drilling or LWD). This allows for operational decisions to be made during the process of drilling. One type of sensor measures the resistivity of the surrounding material by injecting current into the rock. Comsol Multiphysics software is used to model the response of the sensor as it passes through rock layers of various resistivity. The information gained from this model is used to calibrate the device and improve its design.

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