Detection and Quantification of Surface and Bulk Corrosion in Steel Using Electrical Method

Research Themes

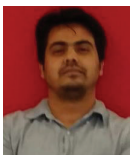
Steel is the most common metal used in oil wells, pipelines, and many other structures. Detection and quantification of corrosion is a major problem in the field. A new detection and quantification method has been developed based on changes in the electrical properties of steel. This method can be used to quantify the surface and bulk corrosion in the steel

Recent Accomplishments

1. The electrical method is used to measure the resistance of steel bars. By the resistance measurement of bars from different directions, corrosion can be predicted and quantified. This method is used to identify and confirm potential corrosion in steel.
2. The rate of change of corrosion is higher compared to any other corrosion quantification method, enabling the user to know the actual condition of the metal.
3. This method of quantification is successfully employed to find the corrosion of steel casing in borehole, steel embedded in concrete and steel frames.

Issues

The major problem is in using the suitable contact method to get the resistance readings of material. Improper contact with metal may lead to erroneous data.



Guru Prasad Panda

Major/Field of Study: Civil Engineering.

College: Cullen College of Engineering

Professor: Dr. C. Vipulanandan

Email: guruprasadpanda@uh.edu

CIVE