

**Title : Study of Desiccation Crack Patterns in Aqueous Clay Suspensions
and The Role of Charge Distribution in Formation of Cracks Under
Electric Field**

Studying fracture patterns is a key topic of research in modern material science because different features of crack growth have so many practical, commercial, and industrial applications. The major goal of studying this subject is to gain knowledge about crack prevention methods and how to implement them to improve technology and daily living. However, more recently, the strategy for controlling crack patterns has equalised with the conventional intent of crack prevention. The formation of cracks and their unique characteristics depend on several external perturbations such as ambient conditions, application of stress fields, mechanical loading, addition of chemical components to the desiccating colloidal suspensions etc. According to the need in various field the cracks can be prevented or 'designed' by modifying these factors. Our aim of this study mainly focusses on two clay systems - Bentonite and Laponite[®] under such diverse environment. We will investigate how an aqueous solution of Laponite[®] responds to an external electric field when it is contained within a specific shape and size, as well as how its desiccation cracks change when another clay (bentonite) belonging to the same family has been introduced.

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12.05.2023
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