Effect of Gap Geometry Over Crack Initiation Stress of Numerical Specimen

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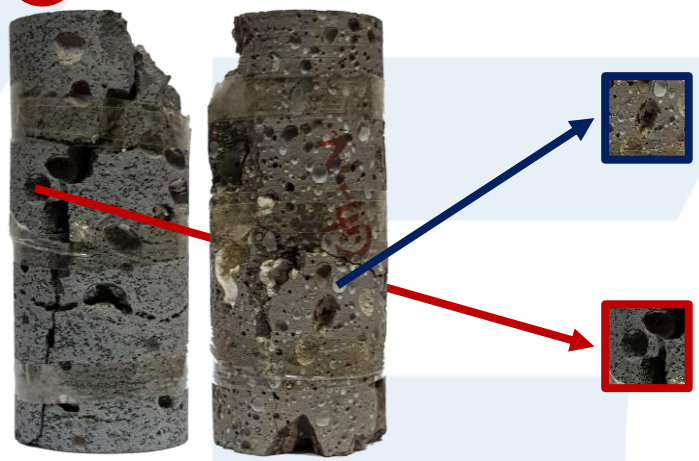
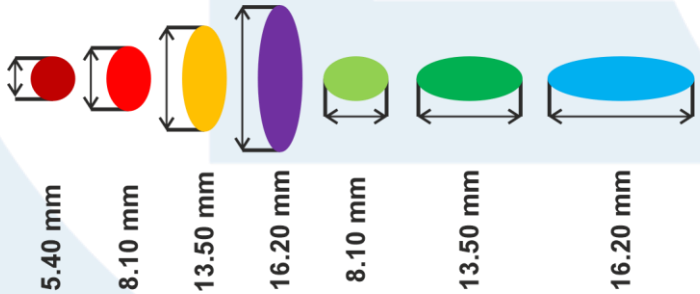
1



Gaps with different geometries (sphere, ellipsoid, etc)

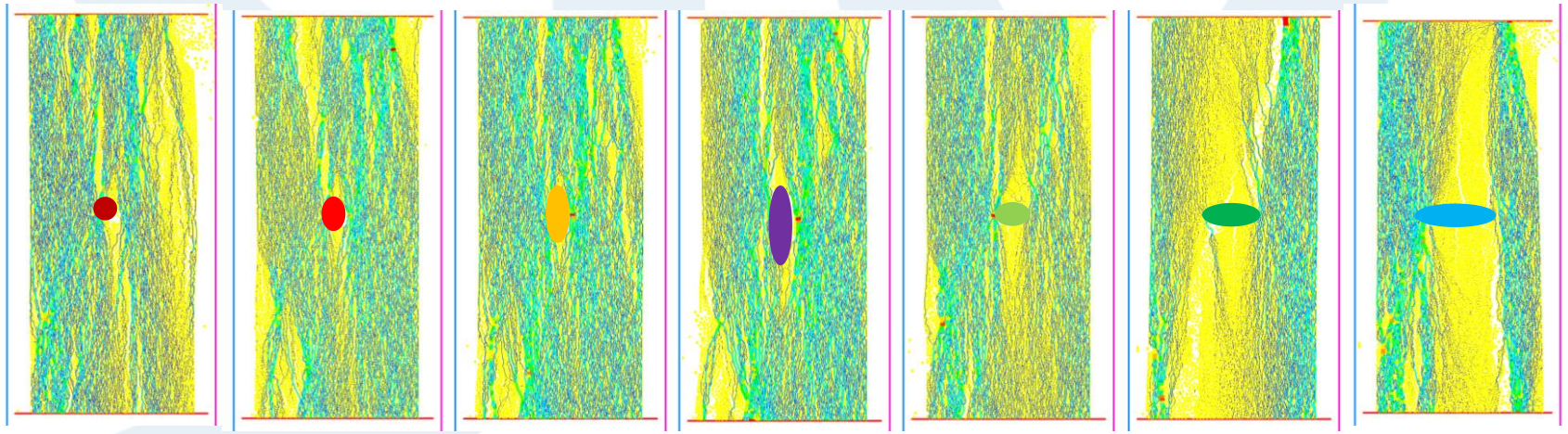
2

"Crack Initiation" is the starting point of rock failure and directly related with rock structure



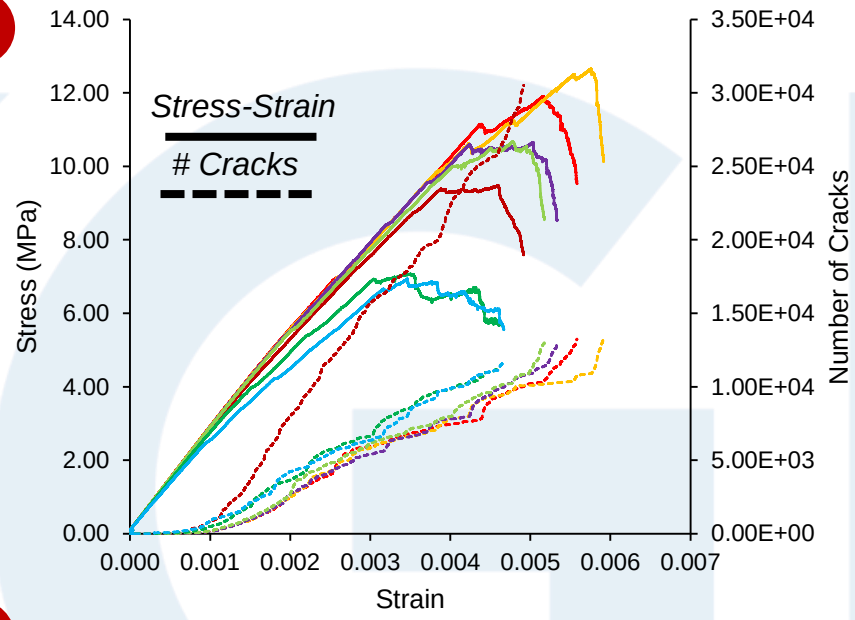
"7 models" with different gap geometries

3



Different geometry different failure behaviour

4



Increase in diameter in the horizontal direction

- Lower peak strength (**Blue** and **Green**)
- Lower crack initiation stress

Increase in diameter in the vertical direction

- Higher peak strength (**Purple** and **Yellow**)
- Higher crack initiation stress

These are two main fundamental results to understand and model the complex nature of rock materials