



IIT PALAKKAD

## Dr. Bibhu Ranjan Sarangi

PhD RRI, Bangalore

Assistant Professor, Department of Physics

bibhu@iitpkd.ac.in

<http://www.iitpkd.ac.in/people/bibhu>

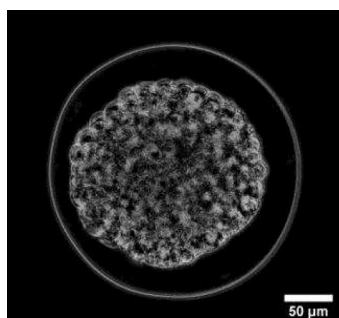


### Research Interest

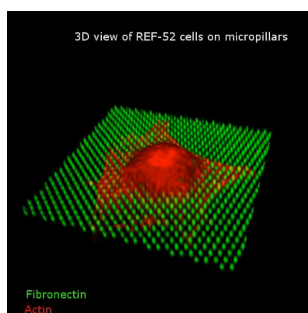
- Mechanobiology
- Cell-substrate interaction
- Physics of cancer

### Brief Summary of Research

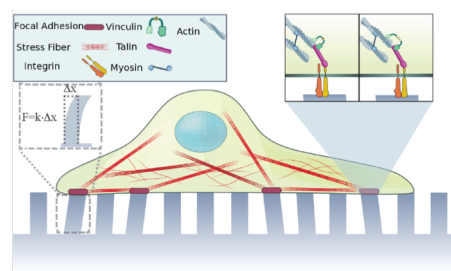
Dr. Bibhu's research aims to understand how living matter sense and respond to the external stimuli from their microenvironment at different length scales. Using an in-house microfluidic device he and his colleagues have studied the tumor growth dynamics in a confined geometry. In addition he has also investigated the correlation of external forces with the internal tension developed at the scale of a protein. Altogether these studies have provided new insights to understand the interaction of cells with their microenvironment.



Cellular Capsule



Cells on micropillars



Force mapping at Focal adhesions

### Projects

- “Mechanistic correlation between homeostatic pressure and metastatic competence in cancer cells”. DST SERB (Early career Research Award) ~ INR 48 Lac. (Ongoing)

### Recent publications

- Coordination between intra- and extra- cellular forces regulates focal adhesion dynamics. **B R Sarangi**, M Gupta, B Doss, N Tissot, F Lam, R M Mege, N Borghi and B Ladoux. *Nano Letters*, 2017, 17 (1), 399, 2017.
- Adaptive rheology and ordering of cell cytoskeleton govern matrix rigidity sensing. M Gupta, **B R Sarangi**, J Deschamps, A Callan- Jones, F Margadant, R M Mege, C T Lim, R Voituriez, B Ladoux, *Nature Communication*, 6, 7525, 2015