Publication (Topic wise)

1. **Bio-physics of the cell**

- *Chiral flows in the separating wall during cell division*, V. Ganguly, M Chatterjee, A. Sain, (bioRxiv, 2023.03. 03.531016, under review)
- *Dynamic surface patterns on cells*, M.Chatterjee and A. Sain, J. Chem.Phys. **156**, 084117 (2022).
- *Dynamics and stability of the contractile actomyosin ring in the cell*, M. Chatterjee, A. Chatterjee, A. Nandi, and A. Sain, **Phys. Rev. Lett. 128**, 068102 (2022).
- *Cytoplasmic streaming in C. elegans: forces that drive oogenesis*, V.V. Menon, M.M. Inamdar and A. Sain, **Euro. Phys. Lett. 135**, 24003 (2021).
- *Asymmetric flows in the intercellular membrane during cytokinesis*, V.V. Menon, S.S. Soumya, A. Agarwal, S.R. Naganathan, M.M. Inamdar and A. Sain, Biophys. J. **113**, 2787 (2017).
- *Shape transitions during clathrin-induced endocytosis*, G. Kumar and A. Sain , Phys. Rev. E. **94**, 062404 (2016).
- *Dynamic force balances and cell shape changes during cytokinesis*, A. Sain, M.M. Inamdar and F. Jülicher **Phys. Rev. Lett. 114**, 048102 (2015).
- *From chemosensing in bacteria to practical biosensors*,Surya K. Ghosh, Tapanendu Kundu and Anirban Sain, Phys. Rev. E., **86**,051910 (2012).
- *Stuttering Min oscillations within Escherichia coli bacteria: a stochastic polymerization model*, S. Sengupta, J. Derr, A. Sain and A.D. Rutenberg, Phys. Biol., **9**, (2012) 056003, (2012).
- *Force generation in bacteria without nucleotide-dependent bending of cytoskeletal filaments*, Biplab Ghosh and Anirban Sain, Phys. Rev. E., **83**, 051924 (2011).
- *Self-organization of the MinE ring in subcellular Min oscillations*, Julien Derr, Jason T. Hopper, Anirban Sain and Andrew D. Rutenberg, Phys. Rev. E **80**, 011922 (2009).
- *Origin of contractile force during cell division of bacteria*, Biplab Ghosh and Anirban Sain, **Phys. Rev. Lett.**, **101**, 178101, (2008). Highlighted by **Nature-India**. http://www.nature.com/nindia/2008/081111/full/nindia.2008.317.html.

2. **Soft Matter: Membranes, liquid-crystals and bio-polymers**

- *A human curvature sensitive septin octamer complex drives membrane deformation with a specific mesh-like organization*, K. Nakazawa, G.Kumar, B.Chauvin, Aurelie Di Cicco, L.Pellegrino, M. Trichet, B. Hajj, J. Cabral, A. Sain, S. Mangenot and A. Bertin, J. Cell Sci **136**, jcs260813, (2023).
- *Temperature-dependent self-assembly of biofilaments during red blood cell sickling*, A.Behera, O. Sharma, D. Paul, and A. Sain, J. Chem.Phys. **157**, 014105 (2022).
- *Deformation of membrane vesicles due to chiral surface proteins*, A. Behera, G. Kumar, Sk A. Akram and A. Sain, Soft Matter, **17**, 7953 (2021).
- *Chiral molecules on curved colloidal membranes*, Sk A. Akram, A. Behera, P. Sharma and A. Sain, Soft Matter, **16**, 10310 (2020).
- *Confined filaments in soft vesicles - case of sickle red blood cells*, A. Behera, G. Kumar and A. Sain, Soft Matter, **16**, 421 (2020).
- *Tubulation pattern of membrane vesicles coated with bio-filaments*, Gaurav Kumar, N. Ramakrishnan, and A. Sain, Phys. Rev. E **99**, 022414 (2019).

- *Curvature Instability of Chiral Colloidal Membranes on Crystallization*, L. Saikia, T. Sarkar, M. Thomas, V. A. Raghunathan, A. Sain, and P. Sharma. **Nat. Commun. 8**, 1160 (2017).
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- *Effect of hydrodynamic interaction on polymeric tethers*, Suman G. Das, Dimitri Pescia, Mithun Biswas and Anirban Sain, Phys. Rev. E. **82**, 041910 (2010). Highlighted by **Nature-India**.
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- *Effect of hydrodynamic interaction on partially stretched polymers*, Anirban Sain, Phys. Rev. E, 77, 061919 (2008).

3. **Statistical physics of solids**

- *Poiseuille Flow of Soft Polycrystals in 2D Rough Channels*, T. Sarkar, P. Chaudhuri, and A. Sain, **Phys. Rev. Lett. 124**, 158003 (2020).
- *Grain size distribution in sheared polycrystals*, T. Sarkar, S. Biswas, P. Chaudhuri and A. Sain, Phys. Rev. M. **1**, 070601 (**Rapid Comm.**) (2017).
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- *Coarsening in polycrystalline material using Quaternions*, Santidan Biswas, Indradev Samajdar, Arunansu Haldar and Anirban Sain, J. Phys.: Condens. Matter, **23**,072202 (2011) (Fast track comm.) (included in **IOP select**).
- *Review of "Resistance to Hydriding in Zirconium - An Emerging Possibility"*, K.V. Mani Krishna, A. Sain, I. Samajdar, G.K. Dey, D. Srivastava, S. Neogi, R. Tiwari and S. Banerjee, Acta Materialia, **54**, 4665 (2006).

4. **Anomalous diffusion and other areas**

- *Non-Gaussian subdiffusion of single-molecule tracers in a hydrated polymer network*, R.K. Singh, J. Mahato, A. Chowdhury, A. Sain, and A. Nandi, J. Chem. Phys. **152**, 024903 (2020).
- *Plasticization of Poly(vinylpyrrolidone) Thin Films under Ambient Humidity: Insight from Single-Molecule Tracer Diffusion Dynamics*, S. Bhattacharya, D.K. Sharma, S. Saurabh, S. De, A. Sain, A. Nandi and A. Chowdhury, J. Phys. Chem. B **117**, 7771 (2013).
- *High electron mobility through the edge states in random networks of c-axis oriented wedge-shaped GaN nanowalls grown by molecular beam epitaxy*, H. P. Bhasker, S. Dhar, A. Sain, M. Kesaria, and S. M. Shivaprasad, **Appl. Phys. Lett**, **101**, 132109 (2012).

PhD and Post-doctoral work

1. **Bio-Polymers**

   - *Microscopic strain distribution profile in a 1-D chain during rupture - a many body Kramers calculation*, Anirban Sain, Cristiano Dias, and Martin Grant, Phys. Rev. E, **74**, 046111 (2006).
   - *Effect of base stacking interaction in heterogeneous single stranded DNA*, Anirban Sain, Bae-Yeun Ha, and Jeff.Z.Y. Chen, Physica-A, **369**, 679, (2006).
   - *The Influence of tether dynamics on forced Kramers escape from a kinetic trap*, Anirban Sain and Michael Wortis, Phys. Rev. E, **70**, 031102, (2004).
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2. **Fluids and Turbulence**

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   - *Large momentum expansions in fluid turbulence*, J. K. Bhattacharjee and Anirban Sain, Physica A **270**, 165 (1999)
   - *Extended self-similarity and dissipation range dynamics of three-dimensional turbulence*, Anirban Sain and J. K. Bhattacharjee, Phys. Rev. E **60**, 571 (1999).
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   - *Multiscaling in models of Magnetohydrodynamic turbulence*, Abhik Basu, Anirban Sain, Sujan K.Dhar and Rahul Pandit, **Phys. Rev. Lett. 81**, 2687 (1998).
   - *Inertial and dissipation range assymptotics in fluid turbulence*, Sujan Dhar, Anirban Sain and Rahul Pandit, **Phys. Rev. Lett. 78**, 2964 (1997).
   - *Some recent advances in the theory of homogeneous and isotropic fluid turbulence*, Sujan K. Dhar, Anirban Sain, Ashwin Pande, and Rahul Pandit, *Pramana: J. Phys. (Special issue on Nonlinearity and Chaos in Physical Sciences)*, **48**, 325 (1997).

3. **Others**

   - *Scaling of resistance in the 2-dimensional Anderson Tight Binding model of disordered systems-2*, Anirban Sain and Abhijit Mookerjee, **Mod. Phys. Lett. B 8** 195(1994).