

# Porosity networks and species diffusion

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## Abstract

While defining a mechanical model for the Lamina Cribrosa (the head of the Optic Nerve), I stress how blood perfusion in a biological tissue can be better described as a species diffusion in a soft body, with balance laws coupled by a dissipation inequality. This coupling relies on both the kinetics/kinematics description and the free energy expression. I show how relevant the free energy form is through numerical simulations<sup>1</sup> of the Lamina Cribrosa response to increasing Intra Ocular Pressure resulting in an impaired blood perfusion.

## References

- [1] A. Tatone, F. Recrosi, R. Repetto and G. Guidoboni, *From species diffusion to poroelasticity and the modeling of Lamina Cribrosa*, Journal of the Mechanics and Physics of Solids, 124, 2019.