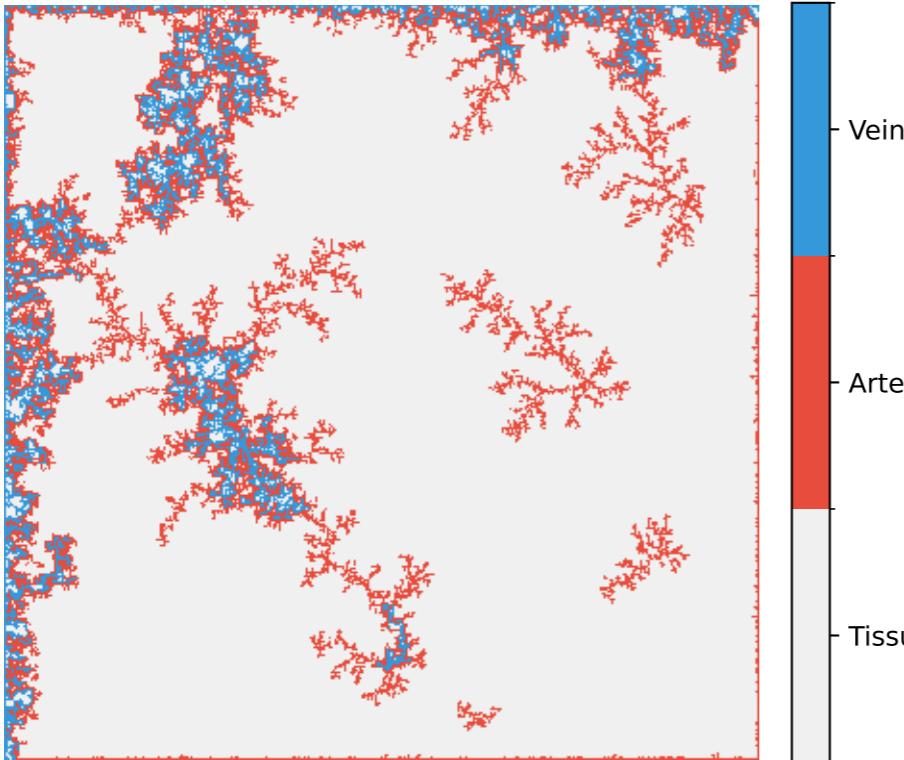
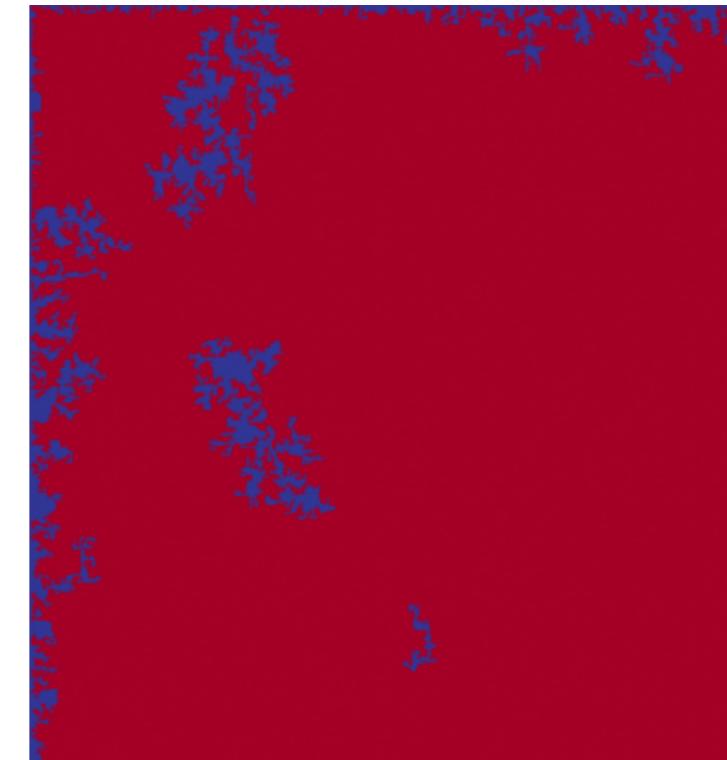


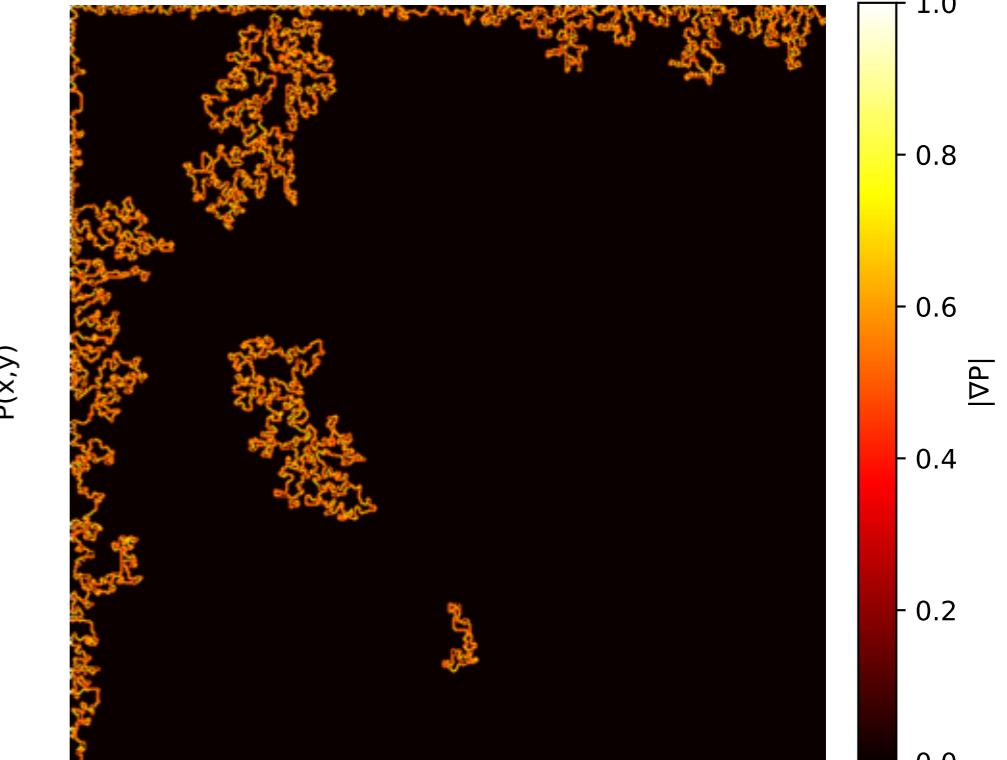
**Final Vascular Structure**  
(Red: Artery, Blue: Vein)



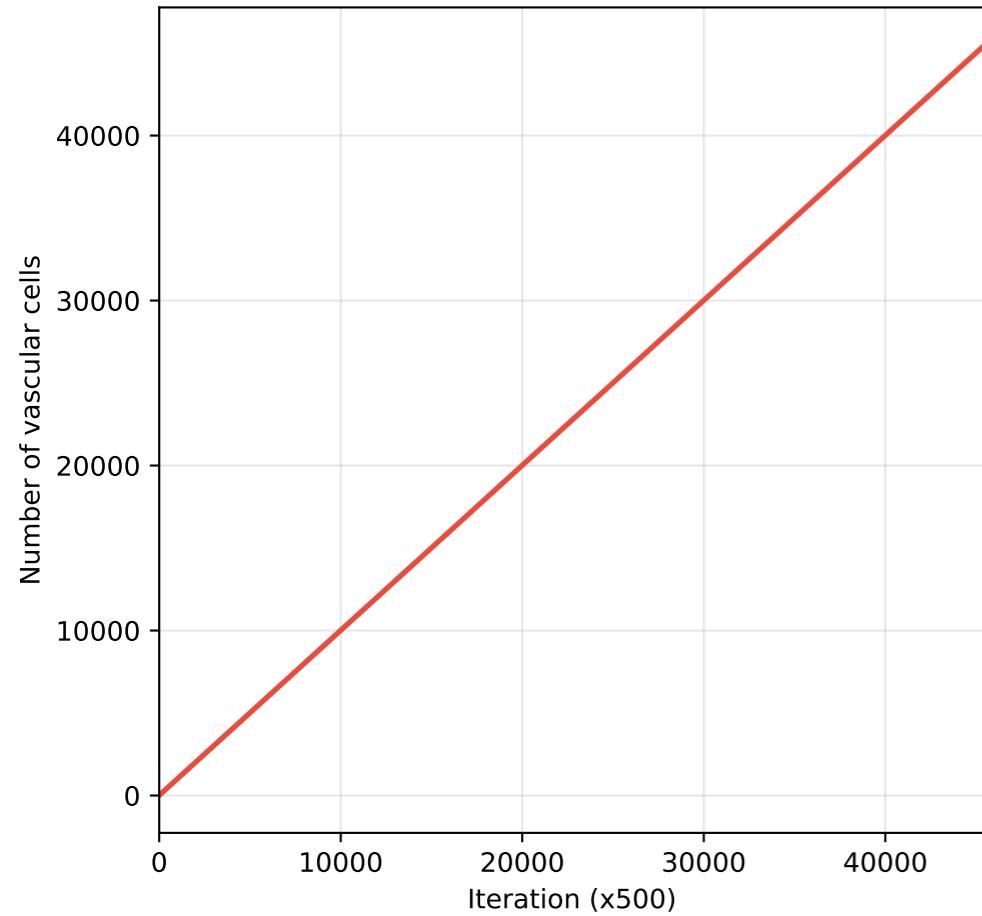
**Final Pressure Field**  
( $\nabla^2 P = 0$ , BC: Neumann)



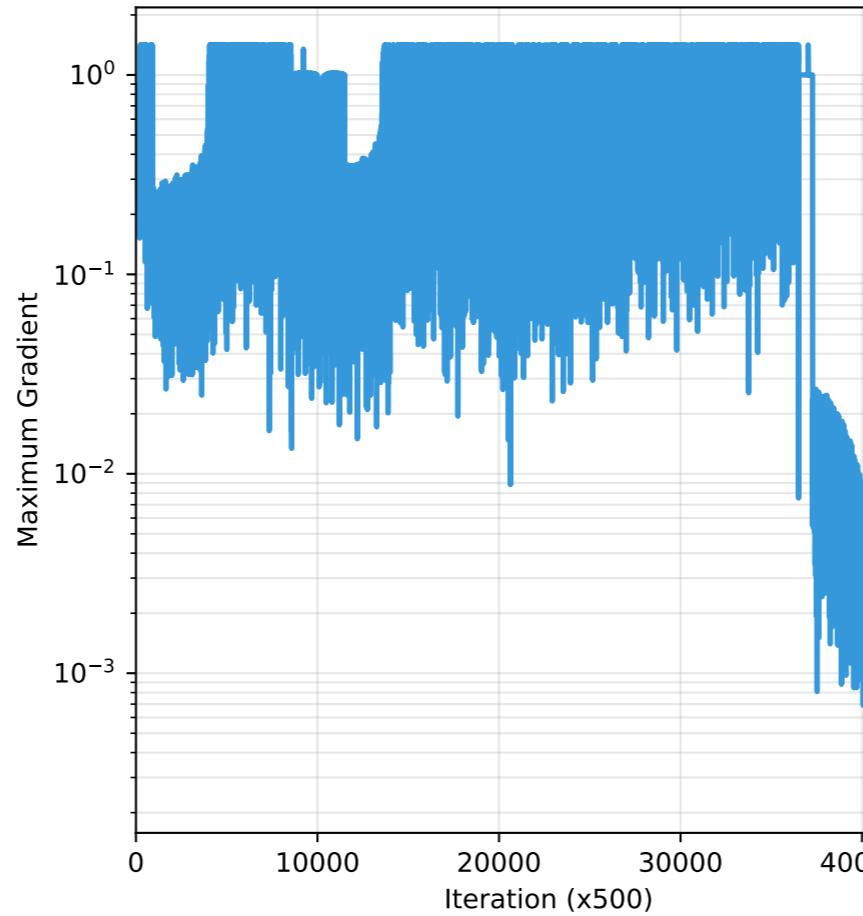
**Magnitude  $|\nabla P|$**   
(shear stress)



**Vascular Network Growth**



**Pressure Field Dynamics**



**MODEL CONFIGURATION**

Grid: 512×512  
Backend: CUDA

Equation:  $\nabla^2 P = 0$  (Laplace)

Boundary Conditions:  

- $P = 1.0$  (arteries)
- $P = 0.0$  (veins)
- $\nabla P \cdot n = 0$  (Neumann)

Growth Prob.:  
 $p_i \propto |\nabla P|^3$

Statistics:  
 Iterations: 45482  
 Vessels: 45492  
 Fraction: 17.35%  
 Time: 1568.00s  
 Speed: 29 iter/s

References:  

- Niemeyer et al. (1984)
- Fleury & Schwartz (1999)