

Physical Parameters for Myelinated Hodgkin & Huxley Model

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- axon length: 1 cm
- axon radius: 0.01 cm
- myelin thickness: 0.01 cm
- current stimulus: $0.4 \mu\text{A}$
- number of discrete axon sections: 30
- specific membrane capacitance (nodes): $1 \mu\text{F}/\text{cm}^2$
- specific myelin capacitance (internodes): $5 \text{nF}/\text{cm}^2$
- specific axial resistance: $5 \Omega \cdot \text{cm}$
- specific resistance exiting axon: $1 \cdot 10^5 \Omega \cdot \text{cm}$
- specific myelin resistance (internodes): $4 \cdot 10^5 \Omega \cdot \text{cm}^2$
- Sodium Nernst potential: 55 mV
- Potassium Nernst potential: -75 mV
- Leakage (Chloride) Nernst potential: -33 mV
- maximum specific potassium conductance: $36 \cdot 10^{-3} \text{ S}/\text{cm}^2$
- maximum specific sodium conductance: $120 \cdot 10^{-3} \text{ S}/\text{cm}^2$
- specific leakage conductance: $0.3 \cdot 10^{-3} \text{ S}/\text{cm}^2$
- resting potential: -60 mV

- initial n-gate open probability: 0.3534
- initial m-gate open probability: 0.06915
- initial h-gate open probability: 0.5142

The source code for the MatLab simulation can be found at:
<https://bitbucket.org/basheersubei/hh-model-with-myelin>.