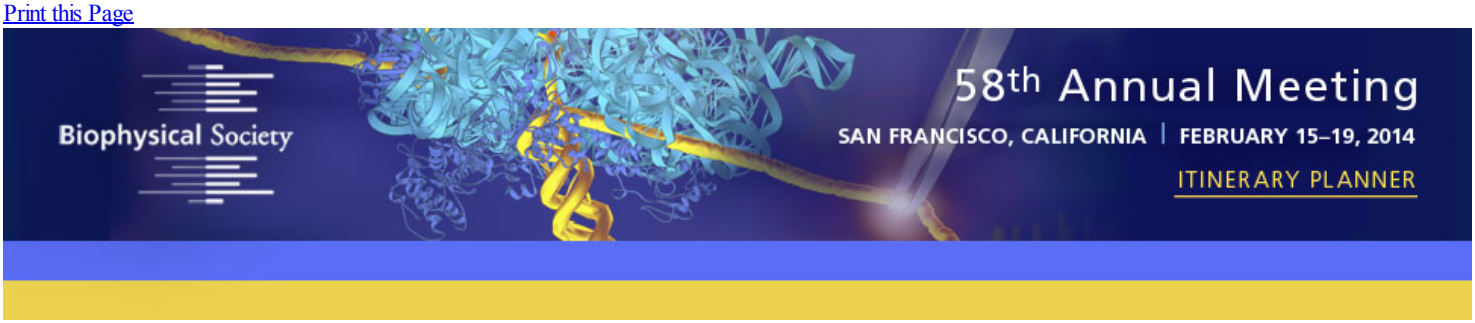

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Abstract Title:	OBSERVATION OF "REMOTE KNOCK-ON", A NEW PERMEATION-ENHANCEMENT MECHANISM IN ION CHANNELS

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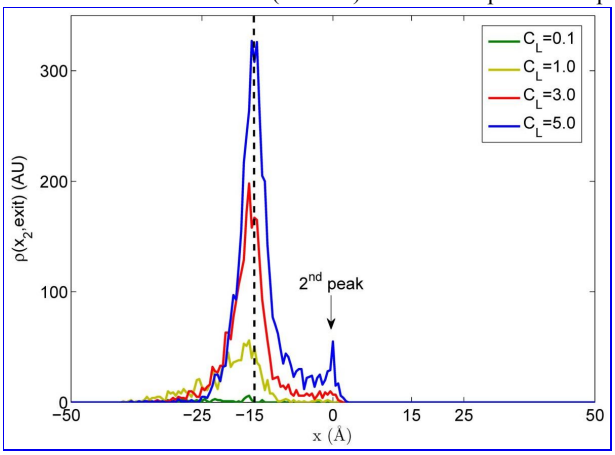
Abstract Body: We report observation of a novel "remote knock-on" mechanism for enhancement of permeation in Brownian dynamics simulations of a simple model ion channel. Unlike conventional knock-on, which requires a second ion of the same species to enter the channel in order to knock forward and replace an ion already in the channel, the new mechanism does not require the instigating ion to enter the channel, nor that it be of the same species.

The figure plots the conditional probability distribution as a function of the position x of the instigating ion at the instant of permeation when the ion initially trapped at x=0 escapes to the right. The curves are plotted for different solute concentrations CL. The most probable position of the instigating ion is clearly at the left mouth of the channel (x=-15Å). A 2nd small peak corresponding to conventional knock-on appears at x=0 for high enough CL.



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