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Exploring the effects of Hofmeister series ions on structural dynamics of water NINGNING XU, THOMAS WRIGHT, SANDIP KALEDHONKAR, AIHUA XIE, Department of Physics, Oklahoma State University — Water is known as the lubricant of life. Most proteins lose their biological function upon dehydration. We found that in a variety of high concentration salt solutions, photoactive yellow protein, a blue light bacterial photoreceptor protein, loses its functionally important structural motions for receptor activation. We hypothesize that this effect is caused by reduced structural dynamics of water due to strong water-ion interactions. Here we report our experimental studies on the effects of salts on changes in structural dynamics of water at different time scales. The results are expected to provide deep insight regarding how Hofmeister series ions alter the structural dynamics of proteins.

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