

## **Picosecond absorption studies of the seven-member visual pigment**

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The visual pigment rhodopsin consists of a chromophore, 11-*cis*-retinal, covalently bound to a protein through a Schiff base. A number of other compounds have been attached to the protein in place of 11-*cis*-retinal to form artificial pigments. The seven-member retinal is of particular interest because it cannot isomerize. When attached to opsin it forms a visual pigment which absorbs at about 490 nm and is stable in light. We report here the first picosecond absorption kinetic measurements of the seven-member visual pigment. Picosecond absorption measurements were performed using a single pulse at 530 nm to excite the sample. Changes in the optical density of the sample were monitored in the visible region. The absorption kinetics and the importance to the primary event are discussed.

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## **Excited triplet states of carotenoids**

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The excited triplet states of several C<sub>40</sub> carotenoids were studied by pulse radiolysis and time-resolved resonance Raman spectroscopy. The Raman spectra indicate a weakening of the C=C double bonds and twisting of inner double bonds of these molecules in their relaxed triplet states. For some selected systems the thermally induced isomerization and the radiation-induced triplet isomerization were studied. These results are discussed with reference to the information on the transient triplet state structures obtained from time-resolved resonance Raman spectroscopy.