reaction cross-section, $\sigma_r$

A quantity used in collision theories of reactions in order to interpret calculated or experimental rates. In some collision theories the reaction cross-section is considered to be related to $b_{\text{max}}$, the maximum value of the impact parameter that allows reaction to occur, by:

$$\sigma_r = P_r \pi b_{\text{max}}^2$$

where $P_r$ is the reaction probability.

*See:* collision cross-section

*Source:* PAC, 1996, 68, 149 (A glossary of terms used in chemical kinetics, including reaction dynamics (IUPAC Recommendations 1996)) on page 183