American Chemical Society
Women Chemists Annual Lecture

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The Simple Nature of the Chemical Bond Uncovered by a Change of Sign in Bohr's Energy of an Atom

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Abstract:

In Bohr's treatment, the energy of a hydrogen atom amounts to half the Coulombic energy between an electron and a proton and hence is negative. The present author considered the ionization energy as due to the difference in the potentials of the electron and proton at the Bohr radius. This makes the energy positive, and it has the same magnitude as given by Bohr's equation. Moreover, it reveals that Bohr radius is divided into two Golden sections pertaining to the proton and electron. On proceeding further, all covalent bond lengths between the same two atoms were found to be exact sums of the Golden ratio based cationic and anionic radii.

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