

A FAIRY STORY FOR CHEMISTS

Once upon a time there was a happy little particle family, which lived down in the shade of a lithium atom. There was Papa Proton, Mama Neutron, the little $1s$ twins and the youngest member of the family, $2s$. Little $2s$ was a merry little fellow whose favorite pastime was spreading out and behaving like a wave, which caused his Mother no end of worry. She had always had trouble finding him since the day he was delivered by Dr. Heisenberg.

One day Mama Neutron struck her head out through the dotted swiss orbitals covering the window of their happy little nucleus and shouted, "Junior"; she always called Little $2s$ 'Junior' because she couldn't remember his name. "Junior", she said, "You may play anywhere you please (as long as you fulfill the Schrödinger wave equation), but don't go near the fluorine atom. He is a horrible, mean electronegative, old ogre who loves to take little $2s$ electrons and chain them up to $2p$ bonds.

"All right, Mama," said little $2s$, and he went skipping merrily up the energy levels in the garden behind the nucleus. It was a wonderful day and $2s$ was so full of energy, (hf), that he gamboled about, emitting childish ultra violet waves of joy.

Suddenly little $2s$ felt a tug at his probability function. There leering over the garden wall, was the fluorine atom. "Come into my $2p$ level," said the fluorine atom to the trembling little electron meanwhile kicking another unfortunate electron back into its orbital. "You'll have lots of playmates there." And before he knew it, little $2s$ found himself snatched away screaming as the fluorine atom (now ion) went racing down the road chortling to himself.

Suddenly the fluorine ion stopped short. On the path ahead was a beautiful, irresistibly obvious, member of the opposite sex. "Hi, Big Boy," she said, "Come up and see me sometime. Just try the third electrolytic vat on the left, and ask for Anne"

Little did the fluorine ion know, but this was the little electron's Fairy Godmother, Anne Ode, who just happened to be speeding down the path in her cadmium hot-rod.

Fluorine ion felt irresistibly drawn by her magnetic personality. "you and I could emit beautiful spectra together, Baby," he said, pushing eyes back in and straightening his $2p$ orbitals.

"To coin a phrase, I'll bet you tell that to all the cute little electrodes," rejoined Anne.

All at once, Anne noticed something strange about the fluorine ion. "my what big orbitals you have. Have you been indulging in stray electrons again, in spite of my warnings?"

The fluorine ion was caught red (7500 \AA) handed. Suddenly he made a break for it, but too late.

The Fairy Godmother was too quick for him. With a wave of her magic wand (a reconverted Mohr buret) she freed the electron, and the fluorine ion was whisked away into a platinum cell at the top of an extremely high mountain of a very hard vacuum. There he was left all by himself to meditate on his crimes for the next mega-century.

And, so, dear children if someday you are slaving away in your laboratory over a hot test tube and you find a lithium atom, which won't react, look very closely at it. You will see Papa Proton, Mama Neutron, and three little electrons sitting on the front porch of their happy little nucleus and you will notice that little $2s$ always stays near at hand because he promised never to stray away from home again.

Moral: Never kidnap an electron, it may be a shocking experience.