

WHAT REALLY CAUSES AUGER EMISSION?

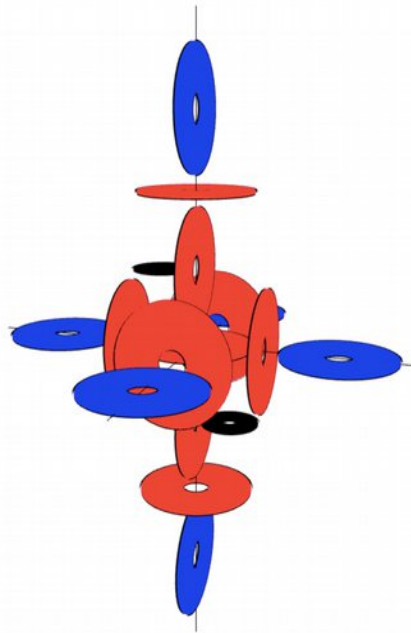
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This phenomenon, first seen by Lise Meitner in 1922, is said to occur when an inner electron is knocked out of an atom. When an outer electron falls down to fill its place, another outer electron is mysteriously ejected. So the atom is therefore doubly ionized, but this ensures the ionization is to outer rather than an inner positions.

The current explanation is admitted to be partial, and the process is not completely understood. This is because it relies on an analysis using electron orbitals, which I have shown do not exist. They exist only in naive book diagrams. In reality, electrons pair up with protons in the nucleus directly, and the current “orbital” distances are only distances of capture. Once we understand this, and once we have a diagram of the nucleus, we can better understand Auger emission.

In my analysis, the Auger process concerns pole electrons only. So let's start with a pretty atom like Tin:



The red disks represent double alphas, the blue disks represent two protons, and the black disks represent single protons. The electrons are not drawn, but it is understood that in an un-ionized state, each proton in the architecture has an electron/positron orbiting its pole. The poles are represented by the holes in the disks. Broadly, the atom is composed of a polar level and a carousel level. Here we have seven disks on the pole proper, with two protons plugged in as well. The remaining eight disks on the atomic equator are what I call carousel, since this level spins like a carousel.

In general, the carousel is more protected, since charge is coming *out* there. Charge comes in the poles and out the carousel. This main line of charge is due to angular momentum, which is greatest at the equator, of course. The strong charge stream exiting the carousel level drive off all intruders, including ambient photons and free electrons. But intruders coming in at an angle from above or below may get past the carousel level. If they also avoid the polar vortices, they may impact polar disks in the interior. The most likely candidates for this are the four red disks above and below the central disk. That gives us sixteen electrons that are most vulnerable. It is a hit on one of those electrons that might initiate the Auger sequence in Tin.

You can see why those electrons are thought of as “interior”. The exterior electrons in this atom are those in the blue disks top and bottom, the ones at the north and south pole. The north pole electrons are the “valence” electrons in my system, and since they are bound at half the strength of the south pole electrons, they are ionized first. After that, the south pole electrons would be the next to go.

Under normal circumstances, the charge streams are set, and inner positions are protected. But, as I said, if a high energy intruder comes in on a steep angle from top or bottom, it can penetrate to those next levels. If that happens, the atom is immediately thrown out of balance, and we can now see the mechanical cause of that. We don't need to get into more abstract or mathematical explanations, since we can see the physical cause. Say the hit is on an electron in the red disk below the central disk. That would be caused by a free electron riding in on the charge vortex entering the south pole, but having too much energy to be fully funneled by that vortex. So it exceeds the vortex and crashes into the atomic interior. That means the electron is thrown out of that hole, giving us a charge leak. But it is a sort of anti-leak, since ambient charge isn't spilling out, it is spilling *in*. The electron had been partially blocking that leak, using the pressure in to keep it in the hole. But once it is bounced out, more external charge is now rushing in. It isn't a great amount, since the hole is small relative to the larger streams, but it is enough to create an imbalance in the atom. The lower half of the atom is overcharged relative to the top half, which will cause big problems if it isn't corrected immediately. The atom is spinning on the carousel, and if it doesn't maintain top-to-bottom equilibrium in the ambient field, it can begin to precess and eventually break up.

Fortunately, the atom is built to self-correct in many or most instances, and we will see how that is done. The leak creates a secondary south pole vortex that ends up sucking one of the south pole electrons off its proton and pulling it down to the inner level. How and why does that happen, exactly? It happens because we have multiple asymmetries here, and those asymmetries are what allow for corrections. To start with, the ejected electron in the interior was on one side of that red disk and not the other. It was not just sitting inside the hole; it was circling the pole of that proton in the alpha. So it's position was either to the right or left of the pole, you see. That is an asymmetry.

Same thing for the electrons on the south pole. We should draw that blue disk as two black disks, to make this clearer. There are two protons plugged in the south pole. Which means their electrons are plugged in those holes *to the side*. The holes in those positions are to the side, so the electrons will also be the side. Therefore, when the leak is sprung in that interior hole, one of those electrons in the south pole will feel it far more than the other one. The electron on the leak side will feel it while the other one won't. This will cause a serious wobble in the main south pole vortex of incoming charge, and that wobble will quickly increase until the weak electron is ripped from its little orbit and pulled down. At that point the wobble will quickly subside.

However, the electron cannot immediately make the switch. It moves down very fast, but not instantaneously. In fact, using the clock of the atom, it may seem relatively slow. The clock of the

atom is set by the charge field, which is moving c , and electrons cannot move anything like c .

So let's study that gap of time while the electron is moving down. Once it is sucked off the south pole, the atom now has *two* southern positions open. Since that south pole electron was also blocking some incoming charge, we now have two leaks in. Or, the vortex moving south to north has just got a double increase. The atom was spinning at a rate set to pull through the previous amount of charge, and the spin cannot increase instantaneously either. So there is too much charge entering the atom from the south. The carousel level cannot deal with it all, and cannot process it. Therefore, it becomes THROUGH CHARGE, moving straight up the pole from south to north, and releasing at the north pole. This extra charge is what blows out one of the electrons at the north pole *from within*. That is why this process resembles **internal conversion**. If you didn't know about the recycled charge field, it would look like this force of ejection was coming from the nucleus itself, with some strange internal potential. But as you see, it is coming from through charge.

Once the electron settles into its inner position, the atom has resumed enough charge symmetry to maintain stability. The balance in the core has been reset, which is the most important thing. The atom can deal with some instability in the poles, since the incoming charge vortices tamp down wobbles. But any major instability in the core is very dangerous, since the vortices have already focused by that time: they cannot reach out with their angular momenta and overcome wobbles. This is why ionization has to take place at the poles, and why it normally takes place at the north pole.

Not only are the north pole electrons bound at half the strength, making them far easier to ionize, but when molecules form, the north pole of the atom is the male plug, since that is where charge is coming out. That stream has to be as strong as possible, and so any electrons in the way of the molecular bond will be blown out to facilitate it. This will again seem to be done "from within", by through charge. The adjoining atom of the molecule will come in from the north, setting up the potential along that line, thereby increasing through charge. The through charge then naturally jettisons electrons that are in the way.