

DDD BUILDING BLOCKS OF MATTER DDD

Atoms are constantly in motion moving around at speeds that are...

THOUSANDS

OF MILES PER HOUR AT ROOM TEMPERATURES



MILLIONS

OF MILES PER HOUR **BEHIND A SUPERNOVA SHOCKWAVE**

In a COLLISION of an atom with

another atom energy can be transferred.

This extra energy can then be released in the form of LIGHT.

Most LIGHT IS PRODUCED by collisions of atoms with each other or with electrons.

WHERE CAN WE SEE THE EFFECTS OF ATOMS COLLIDING?



electric current runs through a tubular glass fixture that is filled with gas.



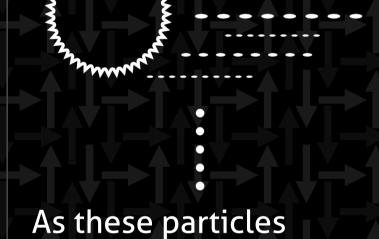
COLLISIONS between the electrons and atoms in the neon gas.

This electric

current causes

THERE.

Streams of particles with electric charge are continually leaving the Sun and traveling through the Solar System.



approach the Earth,

some of them are channeled by the planet's magnetic field toward the North and South poles where they **COLLIDE** with atoms in the Earth's atmosphere.

EVERYWHERE.

explodes, it generates a blast wave that travels through space around the now-dead star.

When a massive star



in this region to a temperature of several million degrees, making the molecules and atoms in the gas vibrate and COLLIDE.

This wave heats the gas

When various This produces the electrons RELAX, famous light shows the energy released we call AURORAS,

produces light that has a very specific color that invite us through the diner door.

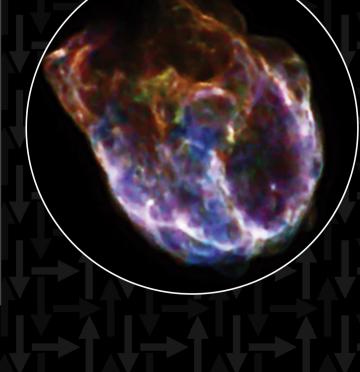
or, more commonly in the Northern Hemisphere, the "Northern Lights."

in this superheated gas relax, they release their excess energy mostly in the form of X-RAY LIGHT.

When the electrons







HTE.SI.EDU/ATOMS