Red shift–momentum loss due to interphoton attraction

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http://homepage.mac.com/whitby/

http://web.me.com/whitby/Octahedron/Welcome.html

Reference

Octahedron1stEd.pdf

Introduction

The octahedral periodicity of the Atomic Elements shows that each atom is a crystalline association of identical regular octahedra. Each octahedron is joined to an identical octahedron by one of its edges, each of which is a magnetic pole. Atom is joined to atom by the same polar joins to form a molecule. Molecule is joined to molecule by the same polar joins to make a CFU. CFU is joined to CFU by the same polar joins to make a crystal. The CFUs are in thermal motion. When the momentum of a CFU at a crystal surface is sufficient, it escapes its polar tether. When its momentum is sufficient to be experienced by an observer as light, it is a photon. Blackbody studies have shown that the momentum of a photon is a function of the temperature of the material only.

Photons escaping from the surface of a spheroidal body at the same time with the same velocity will travel radially outward as a spheroidal envelope [See Figure 1]. Each photon will be oriented so that it is maximally attracted by its nearest neighbors on the spheroidal envelope. The attraction between nearest photons is as the chord of a circular arc whose radius is the distance between the centroid of the photon and the centroid of its source [See Figure 2]. The attraction has a component which acts parallel to the trajectory of the photon, but in an opposite direction. It slows the photon as a function of time. The greater the distance that the photon travels, the longer the time that the interphoton attraction acts, and the more velocity it loses. The greater the distance between an observer and a spheroidal body at a given temperature, the slower the photons from a given material, and the more the perceived color of the perceived light will be shifted towards the red. The distance related red shift observed by astronomers is due to the polar attraction between like photons.

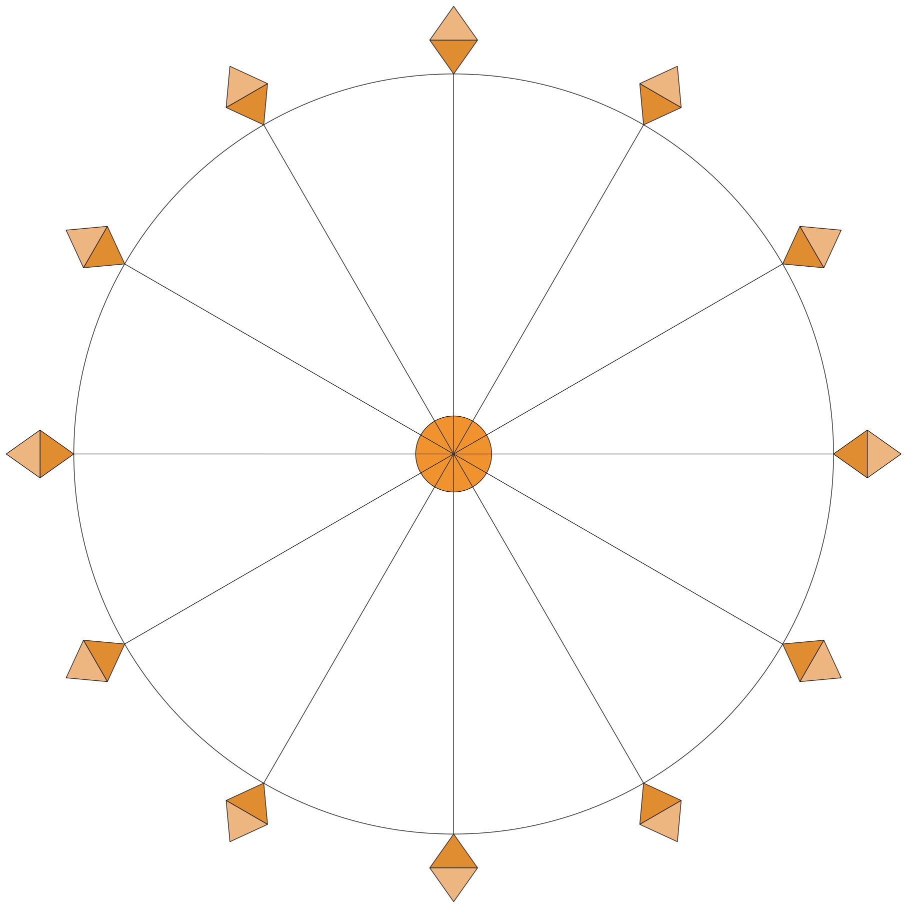

Fig. 1 Photons radiating from a star

A photon escaping from a star orients itself during its outward flight so that its relationship with its nearest neighbors is most magnetically attractive. The figure shows twelve octahedral assemblies each with a trajectory linking it to the centroid of its source–the star represented by the orange circle. The orientation of each octahedron differs each of the other orientations by a rotation about its centroid. Each is equidistant from its nearest neighbors and the next nearest neighbors, and so on. This is the optimum polar orientation for each assembly.

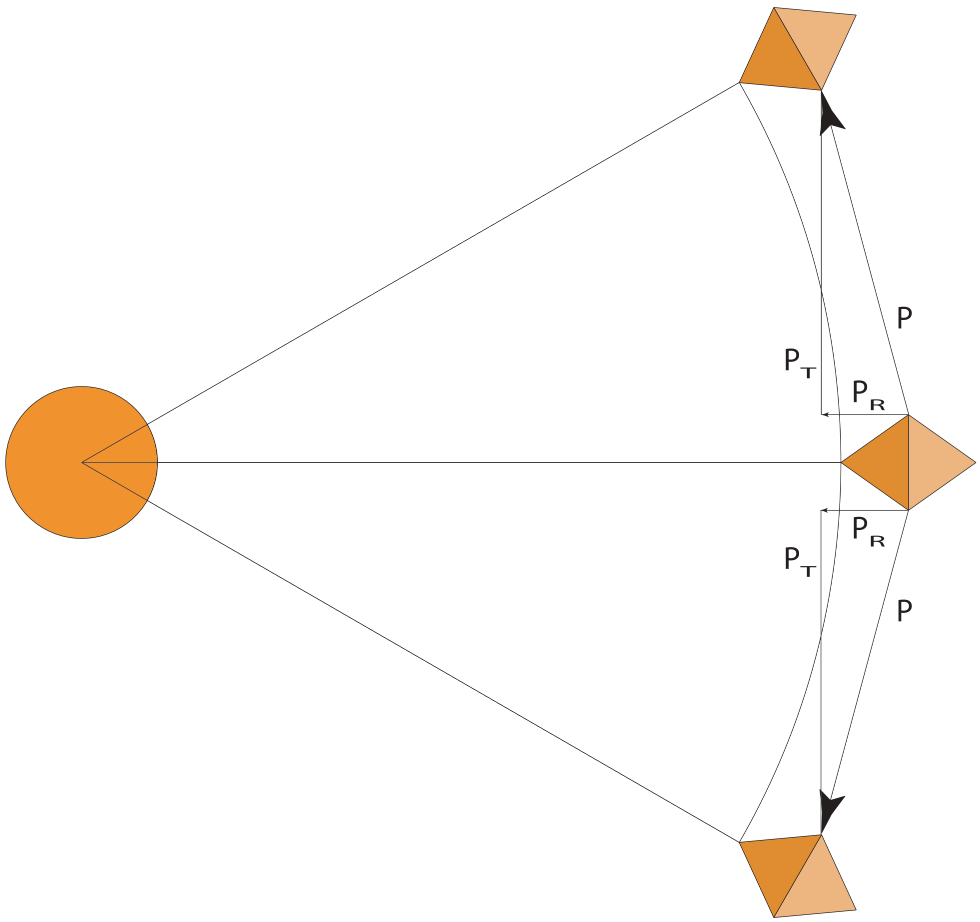

Fig. 2 Slowing of photon due to polar attractions of nearest neighbors

The orange circle represents a star; each of the orange octahedra represents an octahedral assembly, or photon, emitted by the star. The line between star and photon represents the radial trajectory of the photon.

Each of the vectors labelled $\boldsymbol{P}$ represents the polar attraction between the middle photon and each of its nearest neighbors. Each $\boldsymbol{P}$ is resolved into two components, $\boldsymbol{P_R}$ and $\boldsymbol{P_T}$. $\boldsymbol{P_R}$ is parallel to the radial connection between photon and source which represents the photon's trajectory. $\boldsymbol{P_T}$ is perpendicular to the trajectory of the photon and is tangent to the circular arc which links the photon to its nearest neighbors. The $\boldsymbol{P_T}$ to one neighbor is equal and opposite to the $\boldsymbol{P_T}$ to the other neighbor and causes no change in the trajectory. The two $\boldsymbol{P_R}$ components are equal and each opposes the photon trajectory. These components slow the photon. The slowing is a function of time. The further the distance between photon and observer, the longer the time of travel and the more the slowing.

The initial momentum of the photon is a function of the temperature of the body from which it escapes. The loss of momentum due to the polar interaction between it and its neighboring photons during its flight is observed as a change in its observed color toward the red. This observed slowing is called the *red shift*.