

What is Far-Infrared?

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It is hard to explain something that one cannot see with the naked eye, but every evening every one of us looks up into the heavens to see the twinkling stars that make up our universe. We called the first stars born in the galaxies the "heavens." That beginning began in a specific range of radiant heat as a luminous speck of dust and energy called "Infrared." Infrared is usually divided into 3 spectral regions: near, mid and far-infrared. The boundaries between the near, mid, and far-infrared regions are not agreed upon and can vary, but all create radiant heat.

Any object that has a temperature (i.e. radiates heat) emits infrared energy or IR. Therefore, basically all celestial objects and other living organisms emit some infrared. The wavelength at which an object radiates most intensely depends on its temperature. When a person is ill, they will lose radiant heat within their body. The electromagnetic spectrum is composed of three segments of wavelength: near, mid and far- infrared. They are measured in microns or micrometers (a micron = 1/1,000,000 or 0.000,001).

It is interesting to note that this process may be viewed as losing light within one's body as seen in chemical luminescence tests, which are currently being used to aid in the treatment of chronic diseases, such as cancer, diabetes, liver and polycystic kidney disease. In general, as the temperature of an object cools, it shows up more prominently at farther infrared wavelengths. This means that some infrared wavelengths are better suited for studying certain objects than others, such as far infrared.

The far-infrared segment of the electromagnetic spectrum occurs just below, or "infra" to red light as the next lowest energy band. This band of light is not visible to human eyes but can be seen by special cameras that translate infrared into visible colors, such as the way thermal cameras do. We can, however, feel this type of light, which we perceive as heat. The sun produces most of its energy in the infrared segment of the spectrum. Our atmosphere has a "window" in it that allows infrared rays in the 7 to 14 micron ranges to safely reach the earth's surface. When warmed, the earth radiates infrared rays in the 7-14 micron bands, with peak output at 10 microns.

Our tissues normally produce infrared energy for warmth and tissue repair. Tissue production of infrared energy is associated with a variety of healing responses. At times, the infrared energy in our tissues may require a boost to a higher level to ensure the fullest healing possible for tissue repair.

Body tissues that need an infrared boost selectively absorb infrared rays. The tissue will only use the infrared rays in the areas where it is needed. After boosting a tissue's infrared energy, the remaining rays pass on harmlessly. This phenomenon is called "*resonant absorption*." Our bodies radiate infrared energy through the skin at 3 to 50 microns, with most of the output at 9.4 microns. Our palms emit infrared energy in the level of 8 to 14 microns. If you put your hands on top of each other but do not allow them to touch and spin them fast like a tumbleweed in a western movie, then stop them and bring the palms near each other but do not let them touch you will feel a radiant heat. This is infrared energy. Palm healing, an ancient tradition in China, has used the healing properties of infrared rays for 3,000 years. Yogis in India also employ palm healing and recommend it, especially for relieving eyestrain.

Astronomers at the Space Telescope Science Institute, the COBE/DIRBE Science Team and NASA have determined that in the far-infrared range, the stars have all vanished. Instead we now see very cold matter (140 Kelvin or less). Huge, cold clouds of gas and dust in our own galaxy, as well as in nearby galaxies, glow in far-infrared light. In some of these clouds, new stars are just beginning to form. Far-infrared observations can detect these first stars called *protostars* long before they "turn on" visibly by sensing the heat they radiate as they contract. And maybe this far-infrared light of the cosmos is the simple speck of

luminous dust that was used to create all living matter eons of years ago from the pulsation of divine love.

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