Comment on the Isotropic Expansion of the Universe

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Saadeh *et al* recently reported in *Phys. Rev. Lett.* [1] that "*anisotropic expansion of the Universe is strongly disfavoured, with odds of 121,000:1 against*", using CMB temperature and polarisation data from the WMAP and *Planck* satellites. However, it is impossible to determine anything about expansion of the Universe from the WMAP and *Planck* datasets for a number of reasons.

The two 4K blackbody loads of the Low Frequency Instrument (LFI) on *Planck* were maintained at a temperature of ≈4K by fixing them to the cooled shield of the High Frequency Instrument (HFI) on the satellite, by means of metal screws and washers [2, 3], thereby setting up conduction paths. Although this maintained the required operational temperature of the loads, it prevented them from ever functioning as blackbodies [3]. Where conduction is present there is no possibility of a blackbody.

> "*Now the condition of thermodynamic equilibrium requires that the temperature shall be everywhere the same and shall not vary in time. Therefore in any given arbitrary time just as much radiant heat must be absorbed as is emitted in each volume-element of the medium. For the heat of a body depends only on the heat radiation, since, on account of the uniformity in temperature, no conduction of heat takes place.*"
> Max Planck [4, §24]

This single fact alone rendered *Planck* incapable of operating in the way intended. Consequently, *Planck* LFI data on CMB anisotropies is irreparably corrupted.

The CMB anisotropies are ≈1000 times weaker than the galactic foreground. To secure resolution and contrast in any image, signal-to-noise must be consumed. WMAP however had a signal-to-noise barely greater than 1. Furthermore, laboratory experience attests that it is impossible to extract a signal from a background that is ≈1000 times stronger unless the observer has *a priori* knowledge of the signal source or has the capacity to manipulate the source [5]. Neither option was available to WMAP. In determining the Internal Linear Combinations (ILC) the WMAP Team inadmissibly inverted temperatures (producing negative temperatures, thereby making the foreground cooler than the CMB anisotropies sought after), arbitrarily weighted the V-band, and improperly averaged and sectioned maps, to piece together an all-sky anisotropy map that is not reproducible [5]. In the absence of resolution and contrast, only reproducibility is left as an information source, which WMAP also did not have. Moreover, preferentially weighting any of the other frequency bands sampled by WMAP produces an entirely different map. There is no unique map. Tegmark [6] produced from WMAP data, a different anisotropy map, which again attests to WMAP irreproducibility. The all-sky anisotropy maps of WMAP and *Planck* are not the same; they are not even on the same scale.

It is a scientific fact that no monopole signal has never been detected beyond ≈900 km of Earth. Without a monopole signal far from Earth, at say L2, talk of a CMB and its anisotropies has no scientific merit. *Planck* did not report detection of a monopole signal at L2. The actual in-flight operation of the LFI has revealed that there is in fact no monopole signal at L2 [3].

Water absorbs microwaves, evidenced by a microwave ovens in the home and radio communications on submarines. Hence, water also emits microwaves, since a good absorber is also a good emitter, and at the same frequencies. Approximately 70% of Earth's surface is covered by water. This water is not microwave silent. The reason why the COBE satellite did not detect microwave interference from Earth is precisely because the signal it detected is from Earth, from the oceans; more specifically from the hydrogen bond [7]. The COBE shield was incapable of blocking extraneous microwaves from entering the satellite's detectors. Microwaves from Earth's oceans diffracted over its shield no matter which direction COBE pointed [8]. When Smoot and his team, using the COBE-DMR, removed the galactic foreground and the dipole signal, the anticipated anisotropies did not appear. Only after they then removed the quadrupole did anisotropies appear. When Smoot and his team removed the quadrupole they introduced data processing artifacts, which they mistook for data [8]. "*Apparent anisotropy must not be generated by processing*" [5].

The CMB is inextricably intertwined with Big Bang cosmology and its expansion of the Universe, from General Relativity. The reasons why the CMB does not exist are simply stated [9]:

1. Kirchhoff's Law of Thermal Emission is false.
2. Due to (1), Planck's equation for thermal spectra is not universal.

NMR and MRI are thermal processes*. That they ex-

*It is not for nothing that Felix Bloch called T1 the thermal relaxation constant.

ist is physical proof of the invalidity of Kirchhoff's Law of Thermal Emission and the non-universality of Planck's equation. If Kirchhoff's Law of Thermal Emission is true and Planck's equation is universal, then NMR and MRI would be impossible, because NMR and MRI utilise spin-lattice relaxation [10]. The existence of clinical MRI and its use in medicine every day proves that Kirchhoff's Law of Thermal Emission is false and that Planck's equation is not universal. But the CMB requires the validity of Kirchhoff's Law of Thermal Emission and universality of Planck's equation. Consequently, when Penzias and Wilson [11] assigned a temperature to their residual signal and the theoreticians [12] assigned that signal to the Cosmos, they violated the laws of thermal emission.

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