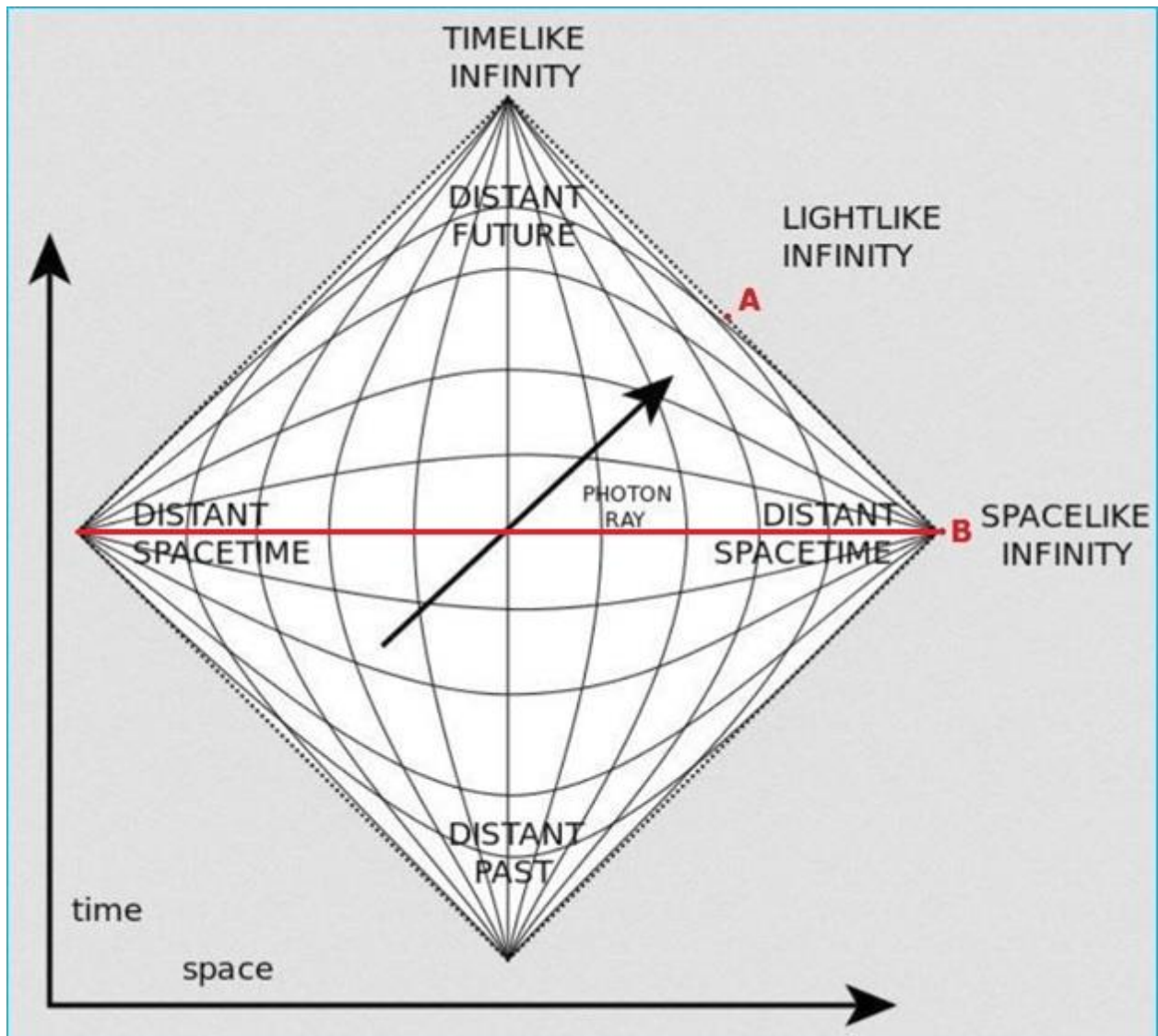


Penrose-Norris Diagram



Adapted from [Wikipedia](#)

“Penrose diagram of an infinite Minkowski universe. The diagonal boundary lines of a Penrose diagram correspond to the “infinity” where light rays **must** (Sic! - D.C.) end.”

To quote from [Wikipedia](#), the Penrose diagram “introduces a system of representing distant spacetime by shrinking or “crunching” distances that are further away. Straight lines of constant time and straight lines of constant space ordinates therefore become hyperbolas, which **appear** (Sic! - D.C.) to converge at points in the corners (not at **A** - D.C.) of the diagram. These points represent “conformal infinity” for space and time.”

This is not a joke – check out [Penrose_omega_zero.jpg](#).

In the drawing above, I marked **null infinity** (Scri₊) with **A** and spacelike infinity (Spi) with **B**, to help you define null-and-spacelike infinity (Scri U Spi viz. **Trautman-Bondi mass & ADM mass**) *exactly* at **A≡B** : “Essentially nothing is known” (**Bob Geroch**). True, because Scri and Spi are apples and oranges – there is no room whatsoever for *any* **dynamics** (**Bob Geroch**) along spacelike directions. The entire universe is **already** fixed *en bloc* and the horizontal **red** line above shows the “trajectory” of some **transcendent tachyon**, which will be absolutely everywhere in no time, that is, at absolute rest.

How about the first *direct* observation of **vacuum spacetime**, dubbed **GW150914**? You have to install GW “mirrors” *exactly* at **A≡B** (p. 3 in **Schutz.pdf**), to confirm Penrose’s conformal recipe and BMS group B (Hermann Bondi *et al.*, **Paper VII**). They were validated empirically by Prof. Dr. rer. nat. **Chuck Norris** (announcement below).



Chuck Norris’ idea was to jump into the so-called “**unphysical manifold M**” suggested by Roger Penrose, reach the very “edge” of spacetime ($\Omega = 0$), and safely come back, contrary to the *insoluble Thomson’s lamp paradox*. Is this mathematically possible?

Yes it is possible, but iff the “**unphysical manifold M**” actually belongs to the *entire* pub in the example below, including the **red** “edges” ($\Omega = 0$) of the two pint beer:

An infinite (**actual infinity**) crowd of mathematicians enters a pub. The first one orders a pint, the second one a half pint, the third one a quarter pint... “I understand”, says the bartender – and pours two pints.

[two pint beer]



The [beer] belongs to the pub

Under this crucial condition, Penrose-Norris will not be approaching asymptotically the **red** “edges” ($\Omega = 0$) of the [two pint beer] “as closely as desired” (Adolf Fraenkel), but will **actually** hit them and **stop** (Sic!) **exactly** at the [GW “mirrors”] at $\Omega = 0$ – **twice**. Needless to say, the *entire* pub, including the two edges ($\Omega = 0$) of the [two pint beer], cannot be **conformally equivalent** to the [beer], and therefore Penrose’s recipe for reaching infinity is manifestly **false**. Besides, keep in mind that the **beer** is 95% “**dark**”.

Alternatively, check out [holon.pdf](#) and [CEN.pdf](#) and the references therein. The ‘two pint beer’ **above** is endowed with *dual* mode of spacetime, global and local. The *global* mode defines the **inertia** of the two pint beer (Fig. 2, p. 4 in [holon.pdf](#)) *en bloc* (Sic!). It is *quietly* (A2 in [Slide 19](#)) residing within the *entire* “pub” **above** (Fig. 4 in [CEN.pdf](#)). It is intrinsically **nonlocal** and cannot be detected – the physical bodies are made by asymptotic “beer” approaching the “edges” of spacetime *asymptotically*, **as closely as desired**, and we can only detect local finite *physicalized* 4D “jackets” (p. 3 in [CEN.pdf](#)) cast in the *local* mode of spacetime, with positive mass only (Eq. 1, p. 4 in [CEN.pdf](#)).

See also p. 36 in [spacetime.pdf](#), and Fig. 12 (**dual age cosmology**) and p. 15 in [CEN.pdf](#). All this is encapsulated in the old story below (Fig. 22 in [spacetime.pdf](#)).



The enclosed words mean ‘The All is ONE’

Any time you look at your watch to record your local ‘**here and now**’, the Dragon has already caught its tale in the **past**, and the next **new** state of the tail (*Heraclitus river*) has already been shifted one infinitesimal step (**dt**) ahead in the **future**, *ad infinitum*. The **past/future** *polarization* of spacetime unfolded “after” [[John 1:1](#)], of course.

This is just a casual outline of the dynamics of spacetime; more in p. 6 in [holon.pdf](#) and p. 67 in [gravity.pdf](#). The full version is expected by Christmas 2017, **hopefully**.

D. Chakalov
10 March 2015

Latest update: 1 June 2017, 17:50 GMT

ADDENDUM

Truth never triumphs – its opponents just die out.
Geheimrat [Max Planck](#)

Thirty years ago, on Thursday, 5 February 1987, I presented the widely known fact of ‘quantum reality’ at a seminar at the Institute for Nuclear Research and Nuclear Energy at the Bulgarian Academy of Sciences in Sofia: check out [Slide 7](#). I spoke for 40 min, from 11AM to 11:40AM, arguing that the human brain and all living organisms utilize ‘quantum reality’, which is not present in QM textbooks. There was 20 min left for discussion until 12PM, but, strangely enough, none of my colleagues attending the seminar raised *any* questions. It was unprecedented reaction on behalf of these academic scholars, all of whom had very high academic credential, mostly from [Dubna](#) in Russia. I interpreted their silence to the fact that I was sharply challenging the official dogma of Marxist-Leninist philosophy, presented by Vladimir Lenin in his pamphlet ‘Materialism and Empiriocriticism’ (1909), and they didn’t want to get involved – we were living in a dreadful communist country, totally controlled by the communist mafia and Bulgarian branch of KGB. But I nevertheless decided to speak out, and was *very* well prepared to answer all questions about ‘quantum reality’ in QM and in [QED](#). But again, my presentation on 5 February 1987 was met with dead silence, and none of my colleagues mentioned anything about it afterwards, even privately.

On Monday, 16 March 1987, the communist mafia struck back: I was informed that I have lost my job, effective *immediately*. Why? The official explanation was that the Bulgarian Academy of Sciences does not have money for *my* salary. It was a devastating moment, which I can never forget. But what doesn’t kill you only makes you stronger.

Now we all live in a normal world, and nobody has to talk communist bullshit in order to keep her/his job. Yet the reaction to my work from hundreds of mathematicians and theoretical physicists, from many countries around the world, is *exactly* the same – **dead silence** (p. 81 in [gravity.pdf](#)).

Do I have to fly over Thames in London (pp. 5-6 in [holon.pdf](#)) to eventually **trigger their interest** in theoretical physics?

What if I am talking to [Russians](#) and [Max Planck](#) is right?

D. Chakalov

16 May 2017, 14:24 GMT

NOTE

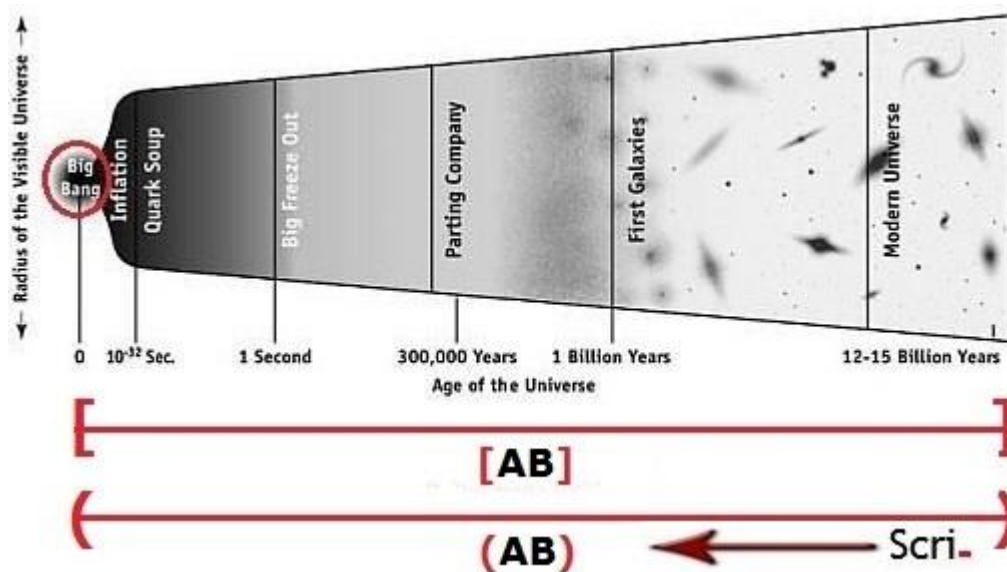
As of today, 31 May 2017, no reply to my email messages from May 11th and May 16th ([gravity.txt](#)) has been received. Nobody even wrote back just to say something to the effect of I-am-too-busy-go-to-hell. The only professional feedback to my work came five years ago, from Prof. Dr. rer. nat. [Maurice de Gosson](#) at the University of Vienna: “Buzz off, idiot!” (Mon, 21 May 2012 18:47:46 +0200).

If you do *not* believe that I am an idiot, and understand the problem with ‘boundary’ at null-and-spacelike infinity, read ref. [21] in [CEN.pdf](#) (links and emphasis mine):

[José M.M. Senovilla](#), Singularity Theorems in General Relativity: Achievements and Open Questions, 30 April 2006, [arXiv:physics/0605007v1](#), p. 6.

Singularities in the above sense clearly reach, or come from **the edge of space-time**. This is some kind of boundary, or margin, which is not part of the space-time but that, somehow (Sic! - D.C.), it is accessible **from within it** (Sic! - D.C.). Thus the necessity of a rigorous definition of **the boundary of a space-time**.

Denote the “boundary of a space-time” with Ω from [Penrose’s recipe](#), and place it *exactly* on the endpoints of the *closed* interval [two pint beer] **above**, depicted with **[AB]** in the drawing below, from [Slide 12](#). **NB:** Your clock reads an “expanding” **(AB)**.



[AB] must be “somehow” accessible from *within* **(AB)**, although **[AB]** is “some kind of boundary, or margin”, which is not part of **(AB)**.

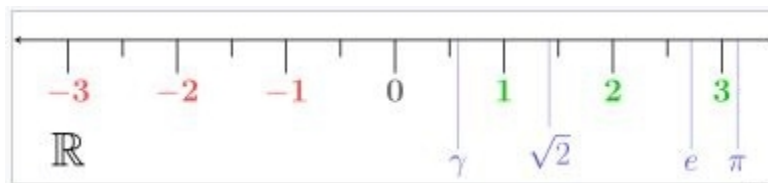
The only possible solution is explained [above](#). The *polarization* of spacetime points ‘here and now’ (Fig. 4 in [CEN.pdf](#)) **assembles** the spacetime “**sideways**”, with (i) *global mode en bloc* (actual infinity within **[AB]**) and (ii) an *orthogonal* local mode endowed with potential infinity within **(AB)**, from (i) *global* spacelike infinity (S_{pi}) and (ii) *local* null infinity ($S_{cri+/-}$). It’s a bundle (p. 10 in [hi_numbers.pdf](#)).

In summary, we can *in principle* define “the gravitational field of the universe as a whole”, pertaining to a “moving universe” (Dennis Sciama), with the *dual* mode of spacetime, global and local (Fig. 4 in [CEN.pdf](#)): think **globally** act locally. Check out the analogy with a school of fish in pp. 89-90 in [gravity.pdf](#) and Fig. 3 in [holon.pdf](#).

Alternatively, if the **wegtransformierbar** gravitational energy were **localizable** (think locally act locally), we could define local gravitational energy density as ‘energy per unit volume’ and find its derivatives with respect to ‘time as read with a clock’ (**dt**), then calculate the *total* energy, including the input from gravity, in some finite volume of spacetime, much like we find **volume of sphere** with the diameter **[AB]** above. Then we could calculate the **gravitational time** during which the total energy of the sphere stays conserved, and of course the two edges Ω at **[AB]** above, à la Penrose & Norris.

Thank God, Nature is smarter.

Now, if you are *professional* mathematician (not like Chuck Norris or Roger Penrose), recall that people nowadays deeply believe that one could identify ‘numbers’ with ‘points’ from a ‘line’ (\mathbb{R}^1), after [Wikipedia](#).



The real line as a linear *continuum* ?

But as Robin Le Poidevin remarked ([Travels in Four Dimensions](#), 2003, p. 121), “If between any two points in space there is *always* a third point, can anything touch anything else?”

Stated differently, how could we identify **absolutely** every point from the real line above, to prove that it is indeed a linear *continuum* ? Only and exclusively only with the two *ontologically* different presentations of infinity, as explained [above](#).

Don’t try to sweep the garbage under the rug with some “local differential geometry” (Bob Geroch). You need the *hyperimaginary* numbers, which provide the unique “**zero**” that is quietly (Eq. 1, p. 4 in [CEN.pdf](#)) residing “between” any two points viz. numbers from the real number line, thereby making it a *genuine* continuum. Then of course we need to dig much deeper – check out p. 19 in [CEN.pdf](#).

Let me know if [you’re interested](#).

D. Chakalov

1 June 2017, 19:00 GMT