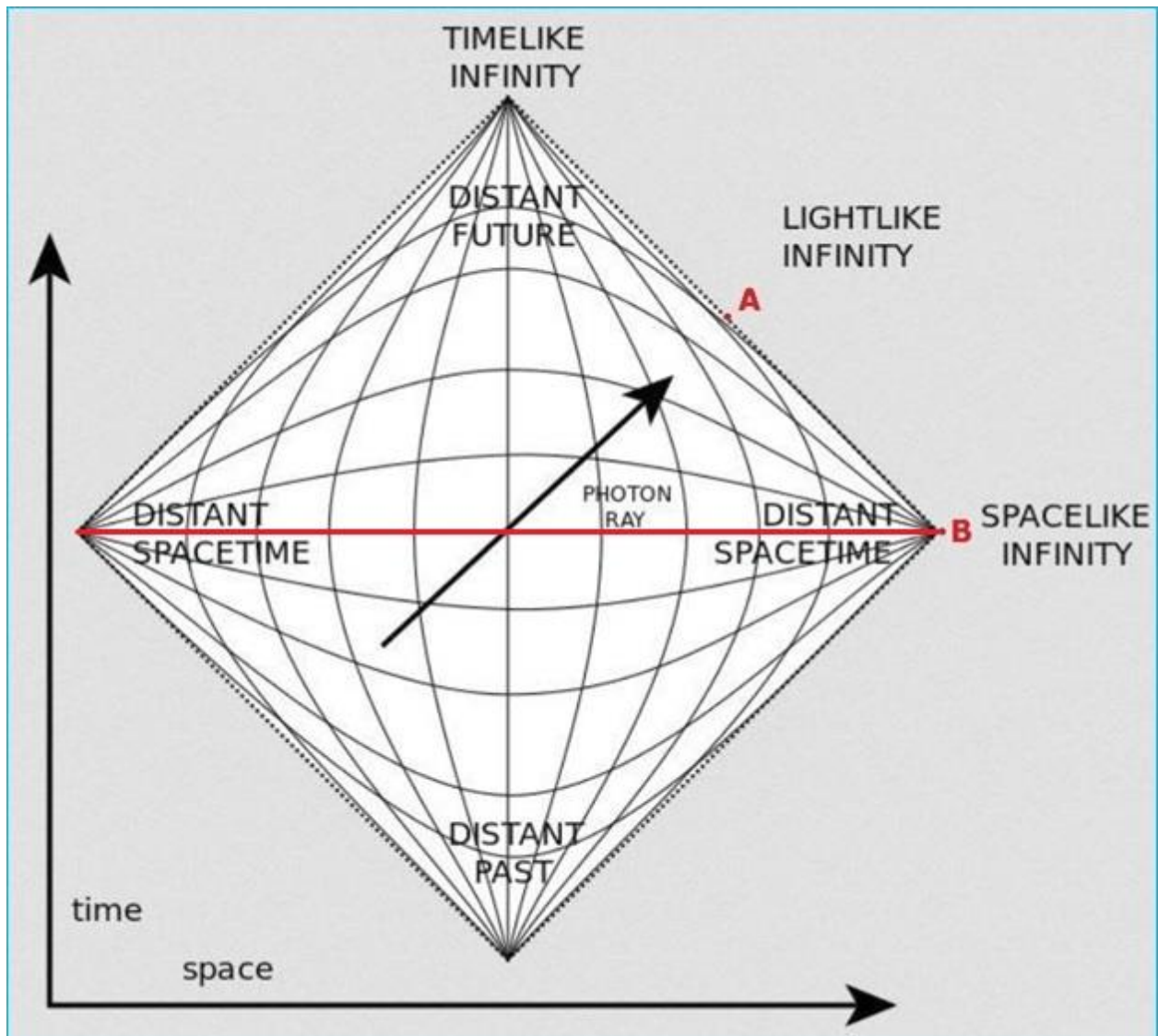# Penrose diagram

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 (**Ω = 0**), and safely come back, contrary to the insoluble Thomson's lamp paradox. Sounds like a "miracle". Or is it?

Not at all. Actually, the "unphysical manifold **M**" belongs to the *entire* pub in the example below, including the **red** "edges" (**Ω = 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.

The beer belongs to the pub

Stated differently, Roger Penrose and Chuck Norris did not get "as closely as desired" (Adolf Fraenkel) to the **red** "edges" ($\Omega = 0$) of the two pint beer, but they *actually* hit them — **twice**! Which means that the *entire* pub, including the edges ($\Omega = 0$) of the glass holding the **[**two pint beer**]**, were "**conformally** equivalent" to the beer!

If you like the Penrose-Norris proposal, 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 <u>only</u> 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 Fig. **12** on p. **13** and the dual age cosmology, p. **15** in CEN.pdf. All this is encapsulated in the old story below (Fig. **22**, p. **22** in spacetime.pdf).

ο ὐ ρ ο β ό ρ ο ς

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 been shifted one infinitesimal step (**dt**) ahead in the **future**, *ad infinitum*.

This is, of course, only a casual introduction to the dynamics of spacetime (p. **6** in holon.pdf). The full version is expected by Christmas 2017, hopefully.

D. Chakalov
10 March 2015
Latest update: 14 May 2017, 11:00 GMT

NOTE

Thirty years ago, on Thursday, 5 February 1987, I presented the widely known, ever since 1911, 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 supposed to be 20 min 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 dark 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 lived in a horrible communist country, totally dominated by the communist party in Bulgaria and the Russian 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 academic scholars, 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?

D. Chakalov
Sunday, 14 May 2017, 13:32 GMT