Appendix(D) concerning special Julia sets' Hausdorff dimension

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Abstract
The appendix D is a resumption of results & statements of the Appendices B and C (see the website http://culetto.at/private_research_associates/appendix...) and contains (our) recent speculative, philosophical view and an outlook on a possible role of special Julia sets' Hausdorff dimension within the ultra-relativistic domain of particle dynamics.

Contents
As was already stated in the said files, there are indications that there might be a relation between the Hausdorff dimension of special Julia sets J and quantum particle dynamics' relative energy E/E_o, i.e. $E/E_o = f(D_H(J))$. In the 1D holomorphic dynamics case (a maybe too naïve picture for propagating particle masses exceeding the electron's one) treated, some hope that the use of $D_H(J_{\mathbb{C}})$ – $J_{\mathbb{C}}$ belonging to the iterative $z \rightarrow z^2 + \mathbb{C}$ map – could work, and the corresponding complex parameter values be restricted to the Mandelbrot set M's big cardioid was expressed. Assuming period - 2^0 oscillation ↔ (integer charged) particle duality and $f(D_H(J_{\mathbb{C}}))$'s continuity, as every ultra-high relative energies formulation had to yield the Lorentz-Einstein equation below $\beta = (1 - \varepsilon)$, $\varepsilon > 0$ as its "low" momentum limit. And most important, almost unperturbed underlying iterative maps tacitly taken for granted.

Up to this point, so-called "lean" ($D_H(J) < 2$) Julia sets only have been considered by us. But there are "balanced" J ($D_H(J) = 2$, area(J) = 0) and "black hole case" ones (with positive area) too (see M. Lyubich, Journal of Modern Dynamics Vol.6, No2, 2012, 183-203 and lit. cited). The geometric trichotomy of $J \subset \mathbb{C}$ apparently indicates that one might possibly be able to even handle extreme energy localization (as well as accompanying gravitational phenomena). Provided that there is a method/path to get the underlying iterative map(s) perturbed in a way to first fit Shishikura's route toward Hausdorff-dimension-2 Julia sets (via twice renormalization, M. Shishikura, arXiv:math/9201282v1 (1991)) and eventually to fit Lyubich's perturbation/renormalization cascade. And the likely inevitable change to (still developing) 2D holomorphic dynamics could maybe enable a breakthrough in description of gravity from an unexpected direction. Formulation of all structures/objects existing/growing in terms of Julia sets (no matter how complicated the underlying holomorphic dynamics may be, or whether J is the entire Riemann sphere or just a subset of $\mathbb{C}$) possibly could result in a sort of "2nd thermodynamics" (STD). STD would deal with extended objects by their fractal outlines. Objects' connectivity would be determined by control space element choice and fluctuation. Only dimensionless, relative quantities would have any invariant meaning as nonlinear iterative maps are involved. Relative mass-energy is going to be functionally tied to the crumpledness of (connected) fractal outlines, its exotic analogues to such Cantor-disconnected ones. STD could also be capable of reproducing features present on the smallest scales, i.e. yield internal quantum numbers, and on larger scales then of matching with quantum theories' particle propagation. Additional stochastics are likely enriching the quantum picture, and strictly(?) correlated double iteration $z^{(1,2)}_{n+1} = R(z^{(1,2)}_n)$, $R(z^{(1,2)}) = \left((z^{(1,2)} - 2)/z^{(1,2)}\right)^2$ mapping in the two orthogonal complex z-planes of the preliminary "minimum geometry" maybe the fitting key to entanglement…