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Hemispheric Regional Based Analysis of Diffusion Tensor Imaging and Diffusion Tensor Tractography in Patients with Temporal Lobe Epilepsy and Correlation with Patient outcomes

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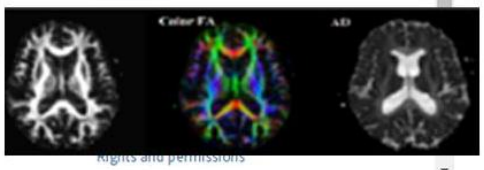

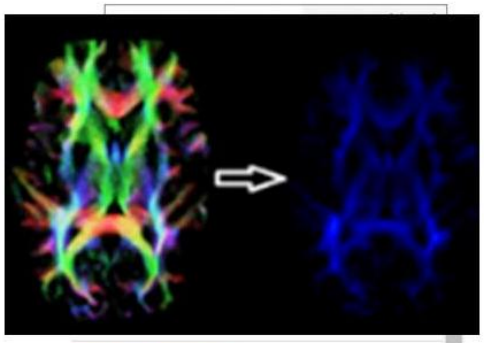

Abstract

Imaging in the field of epilepsy surgery remains an essential tool in terms of its ability to identify regions where the seizure focus might present as a resectable area. However, in many instances, an obvious structural abnormality is not visualized. This has created the opportunity for new approaches and imaging innovation in the field of

Arturo Tozzi cns · 2 minutes ago

ELLIPTIC CURVES IN THE CENTRAL NERVOUS SYSTEM

The Diffusion Tensor Imaging and Diffusion Tensor Tractography of neural projections performed by Alizadeh et al. are elliptic curves, i.e., they can be abstractly described in terms of two-dimensional paths without cusps or intersections. These kind of cubic equations' curves are embedded in an algebraic two-dimensional finite field, accurately defined and quantified in terms of points and numbers (both integers and rational). The same type of elliptic curve can be found when examining the wavefronts of EEG and fMRI patterns. What elliptic curves bring on the table, when assessing of brain functions? In our case, elliptic curves (standing for anatomical neural projections detected by tractographic techniques) lie inside a finite field (the brain) which can be subdivided in numbered zones (characterized by integer and rational numbers) and assessed through algebraic weapons, number theory, complex analysis, algebraic geometry and reperesentation theory. Here we provide a few examples. Elliptic curves are equipped with symmetries (they are abelian, in technical terms), apparently hidden at first sight. This allows to compare anatomical/functional neuronal features with matching description which are located in far-flung brain areas. Further, it is noteworthy that half of the elliptic curves displays a low amount of rational numbers, while the other half an infinite number. In our operational terms, this means that half of the nervous patterns are continuous, while half are discontinuous and proceed in temporal/spatial quantized steps. The last, but not ther least, elliptic curve is a a type of cubic curve whose solutions are confined to a region of space that is topologically equivalent to a torus. This means that anatomical and functional nervous trajectories can be assessed in the easily manageable terms of trajectories on a torus.

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