

**P1003****Chargaff's Grammar of Biology: New Fractal-like Rules**

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Room: Grand Exhibit Hall

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Chargaff once said that "I saw before me in dark contours the beginning of a grammar of Biology". In linguistics, "grammar" is the set of natural language rules, but we do not know for sure what Chargaff meant by a "grammar" of Biology. Chargaff discovered some rules about nucleotides that have been named Chargaff's rules. In this work, we further develop his "grammar". Using new concepts, we were able to discover new higher order genomic rules that seem to be invariant across a large set of organisms, and show a fractal-like property, since no matter the scale, the same pattern is observed (self-similarity). We hope that these new invariant genomic rules may be used in different contexts, for example for short read data bias detection and genome assembly quality assessment.

[Back to: Bioinformatics: Algorithms](#)

[<< Previous Poster](#) | [Next Poster >>](#)

[Home/Search](#)

[Browse by Day](#)

[Browse by Type](#)

[Author Index](#)

[Exhibitor Index](#)

[Poster Categories](#)

[Personal Scheduler](#)

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**Where:**

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