The Log-Lin Metric for Generic Responses in Logarithmic Structures ANTONY BOURDILLON, Retired — The Log-Lin metric is keystone on the arch that joins experimental quasicrystal data with ideal structure: how does a periodic probe, *e.g.* an X-ray or electron beam, interact with an "aperiodic" solid to produce sharp diffraction in geometric space? Based on the known structure [1-2], quasi-structure factors are expanded in geometric series, where the metric serves to overlap the periodic wave onto a logarithmic grid [3]. The metric, now systematically analyzed and simulated, enables measurement from the atomic scale to high order superclusters. The metric is analytically derived from a mathematical constant (pi/tau) that converts the geometric series base tau to the same series base pi. The factor applies to physical clusters of extremely dense, binary, hard-sphere, icosahedral, unit cells.

[1] Bourdillon, A.J., *Micron,* **51** 21-25, (2013): doi: 10.1016/j.micron.2013.06.004.
[2] Bourdillon, A.J., *J. Mod. Phys.* **5** 488-496 (2014): doi.org/10.4236/jmp.2014.56060.
[3] Bourdillon,A.J., *J. Mod. Phys.* **5** 1079-1084 (2014): doi.org/10.4236/jmp.2014.512109

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