Renovatio Memoriae and Damnation Memoriae: Signs of Solid Standing of the Compact High Field Machine Approach for Fusion* G. Faelli¹, B. Coppi² and the Ignitor Program Group¹ ¹CNR (Italy) and ²MIT

Although the value of investigating the physics of plasmas close to or at ignition condition has never been questioned, the "relevance" of efforts with this goal [1] has been too frequently passed under silence by supporters of large scale programs that cannot claim this objective. By now studies of the characteristics of ignited plasmas and of the requirements of power producing reactors have led to conclude that operating at ignition is necessary for a practically useful fusion reactor. The confinement scaling laws, that were identified originally when the line of high field compact experiments began to be proposed in order to investigate igniting plasmas, have been rediscovered and confirmed. Both "Renovatio Memoriae" [2] and "Damnatio Memoriae" [3] episodes have occurred in this context and in reference to the first introduction of high field superconducting magnet technology [4] in fusion research. The record confinement parameters, beginning to approach the ideal ignition conditions, obtained recently by the Alcator C Mod machine have validated the perspectives of success of the Ignitor experiment [4]. *Sponsored in part by the U.S. Department of Energy and by C.N.R. of Italy.

[1] B. Coppi, American Institute of Physics, 1721, 1, (2017) 020003-1.

[2] A.E. Costley, et al., Nucl. Fus., 56, (2016) 066003.

[3] D. Kramer, *Physics Today*, **71**, 8, (2018).

[4] B. Coppi, A. Airoldi, R. Albanese, G. Ambrosino, G. Belforte, et al., Nucl. Fus., 55, (2015) 053011.