

Nuclear-Weapon-Carrying Capability Added to Air-Spacecraft of the Third Millennium Traveling on the Hyperbolic Trajectory, Military Version (ASTM 786-H-M)

Syed Arif Kamal*[§] 

PhD; MA, Johns Hopkins, United States (Astrophysics)[‡]; MS, Indiana, Bloomington, United States (Gravitation Physics);
MSc (Mathematical Physics with special courses in Space Physics)^β; BSc (Honors); last 2 summa cum
laude; Gold Medalist (4 Times); Throughout First-Class-First Position; Listed in “Marquis’
Who’s Who in the World”, “Dictionary of International Biography”

Referee, ‘Astrophysics & Space Science’ (Springer Nature), ‘Chemical Thermodynamics
& Thermal Analysis’ (Elsevier) and ‘Optics & Laser Technology’ (Elsevier)
Published in ‘Chinese Journal of Physics’ (Elsevier), member AIAA

Visiting Faculty, Department of Aeronautics and Astronautics, Institute of Space Technology; Consultant, GNC (Guidance,
Navigation & Control) Laboratories and Ex-Senior Scientific Officer, Control-Systems Laboratories,
SUPARCO (Plant), Pakistan Space & Upper Atmosphere Research Commission,
Box 8402, PO Karachi 75270, Pakistan[¶]

Meritorious Professor, Ex-Acting Vice Chancellor, Ex-Dean, Faculties of Science & Engineering
and Ex-Chairman, Departments of Applied Physics, Computer Science & Mathematics,
University of Karachi, PO Box 8423, Karachi 75270, Pakistan

*profdrakamal@gmail.com

Abstract – Air-Spacecraft of the Third Millennium traveling on the hyperbolic trajectory, military version (ASTM 786-H-M) is launched in VTOHL (Vertical-Takeoff and Hovercraft-Landing) mode and then put into the hyperbolic trajectory using the extended-Q system, accomplishing vanishing of the down-range/the cross-range errors. ASTM 786-H-M lands in the hovercraft mode (suspended above the ground, allowing passengers and cargo to be downloaded through ropes and chains), permitting the landing possible on marsh (soft muddy) landscape as well as in thick forests (wet landscape) and deserts (soft sand reserves). Other benefits include, practically, no upper limit on velocity (exception is the limit imposed by special theory of relativity), prevention from EMP attacks and GPS-signal blocking/blinding by using INS (Inertial-Navigation System instead of GPS), combined with stellar (celestial) navigation, as well as the stealth (reduced time-of-flight in the boost phase and then travel on the ballistic trajectory beyond the reach of radars — engine operating for a very short time in the boost phase and no engine IR signature available in the ballistic phase, improving the stealth capability) and the hybrid modes (flown by a pilot during normal operations, but switches to the pilotless mode, if the pilot becomes unconscious, severely injured or killed during flight operations — ASTM 786-H-M is programmed to return to point-of-launch, flying by computers and instruments, only); crew communicate among themselves through secure-encrypted messages employing cipher code. This paper adds dual capability (conventional as well as nuclear), which include tactical nuclear weapons (mini-nukes), neutron bombs, fission bombs (atomic bombs) and, ultimately, fusion bombs (hydrogen bombs) to ASTM 786-H-M. This capability should bring ASTM 786-H-M at par with F-35B or even better.

[Video-Recorded Presentation](#) • [Program](#) (page 6, 6th entry) • [Certificate of Participation](#) • [Abstract Booklet](#) • [Full Text](#)

Keywords – Dual capability, Extended-Q system, Hyperbolic-astrodynamical-coördinate mesh, Normal-component-cross-product steering, Normal-component-dot-product steering, Tactical nuclear weapons, Two-body problem

[ASTM \(786-E\)](#) • [ASTM \(786-H\)](#) • [INS-based Navig. for ASTM](#) • [Cipher Code for Secure-Encrypted Comm.](#) • [SDI](#)

Web address of this document: <https://www.ngds-ku.org/Presentations/ICRAS25.pdf>

[§]Institutional e-mail: sakamal@uok.edu.pk • Current affiliation: Department of Physics (taught in courses in Institute of Space Science & Technology, 2021-2022; Institute of Space & Planetary Astrophysics, 2004-2006; Department of Computer Science, 1999-2006, Additional Charge as Chairman, 2015-2016 and Department of Mathematics, 1995-2016, Chairman, 2003-2006, 2009-2012), University of Karachi; worked as Professor in Department of Mathematics, Jinnah University for Women, Karachi 74700, Pakistan, 2017-2019

[‡]As **Quaid-é-Azam Scholar**, awarded on the basis of topping the list of the entire student body earning masters degrees in University of Karachi

^β**100% marks** in all subjects during the final semester

[¶]**Highest security clearance** by virtue of author’s service in Pakistan Space and Upper Atmosphere Research Commission