

ICAS PROCEEDINGS
1992

18th Congress of the International
Council of the Aeronautical Sciences



Beijing, People's Republic of China
September 20-25, 1992

Volume 1

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ICAS-92-6.9.2	Experimental and Analytical Investigation on Buckling of the Composite Stiffened Panel Under Compression and Shear Tong, X.X., Guan, D.X., Gao, Z.H., Fan, Y.A., Zhang, A.Y.	1927
ICAS-92-6.9.3	Postbuckling Behaviour of Anisotropic Plates under Biaxial Compression and Shear Loads Romeo, G., Frulla, G.	1936
ICAS-92-6.9.4	A Study on Interlaminar Residual Stresses in Fibre-Aluminium Adhesive-Bonded Laminates Li, H.Y., Hu, H.J., Zheng, R.Q.	1945

AERODYNAMICS III

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ICAS-92-7.9.2	Supersonic Wing / Body Interference Blank, S.C.	1949
ICAS-92-7.9.3	Euler Solutions Simulating Strong Shock Waves and Vortex Phenomena over 3D Wings Fan, M., Ma, T.Y.	1960
ICAS-92-7.9.4	Numerical Investigation of Flow over a Shrapnel/Shell Discarding Configuration Liu, S.	1967

VERY LARGE AIRCRAFT

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ICAS-92-1.10.2	Air Transportation System for Shipping Outsize Cargoes Shkadov, L.M., Denisov, V.E., Mavritsky, V.I.	1973
ICAS-92-1.10.3	High Capacity Aircraft Oelkers, W.	1979
ICAS-92-1.10.4	Conceptual Design and Feasibility Study of Very High Capacity Commercial Transports	not available
ICAS-92-1.10 R	The Aircraft/Propulsion Integrated Assessment System Wang, J.Y., Zhang, J., Zhu, Y.K.	1989

FLIGHT DYNAMICS AND HANDLING QUALITIES

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ICAS-92-2.10.3	Estimation of the Probability of Large Flight Parameters Deviations Kuzmin, V.P., Yaroshevsky, V.A.	2010
ICAS-92-2.10.4	A Sensitivity Analysis of the Stability of a Tug-Rope-Sailplane System Matteis, G. de, Socio, L.M. de	2016
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ICAS-92-3.10.3	Five Years Operational Experiences with Indonesian Low Speed Tunnel (ILST) Adibroto, A., Fariduzzaman, Basri Nasiran, M.	2041
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ICAS-92-4.10.4	A Low-Speed Wind Tunnel Study of Vortex Interaction Control Techniques on a Chine-Forebody/Delta-Wing Configuration Rao, D.M., Bhat, M.K.	2092

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