Aircraft Survivability and Stealth Technology

Research goal

Aircraft survivability disciplines and RF & IR stealth design

- Development of multi-disciplinary computation and design method for RF & IR stealth design
  - Signature balancing/prioritisation
  - Cost, time, performance, maintainability, and supportability
  - Specification of RCS budgets for components
  - CATIA based multi-disciplinary computation: CFD + CEM, Panel Method + Physical Optics

Milestones

Stealth disciplines in aircraft design

- Development of CFD-based methods
  - 1st & 2nd order component buildup method
  - Asymptotic method for high frequency range (Physical Optics, hybrid of PO and CEM)
  - Multi-zone finite volume Maxwell code in time domain (broadband; fast Fourier transform)
  - Radar cross section in terms of frequency, polarization, azimuth & elevation angles

Computational electromagnetics and radar absorbing structure

- IR reduction technology and modeling of IR signal of exhaust plume
  - Computation of exhaust plume
  - IR signature measurement
  - Prediction of IR intensity level

Dissemination of research outcomes

- Progress in Electromagnetics Research B (MIT; 2009)
- Journal of The Korean Institute of Electromagnetic Engineering and Science (JKIEES; 2008)
- Lecture Note “Aircraft Survivability and Stealth Technology” (GNU Graduate School; 2007, 2009)

Collaborators

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- Low Observable Research Center (2009-2017)
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