

Possibilities multifunctional optical  
fiber sensing platform for  
aerospace applications

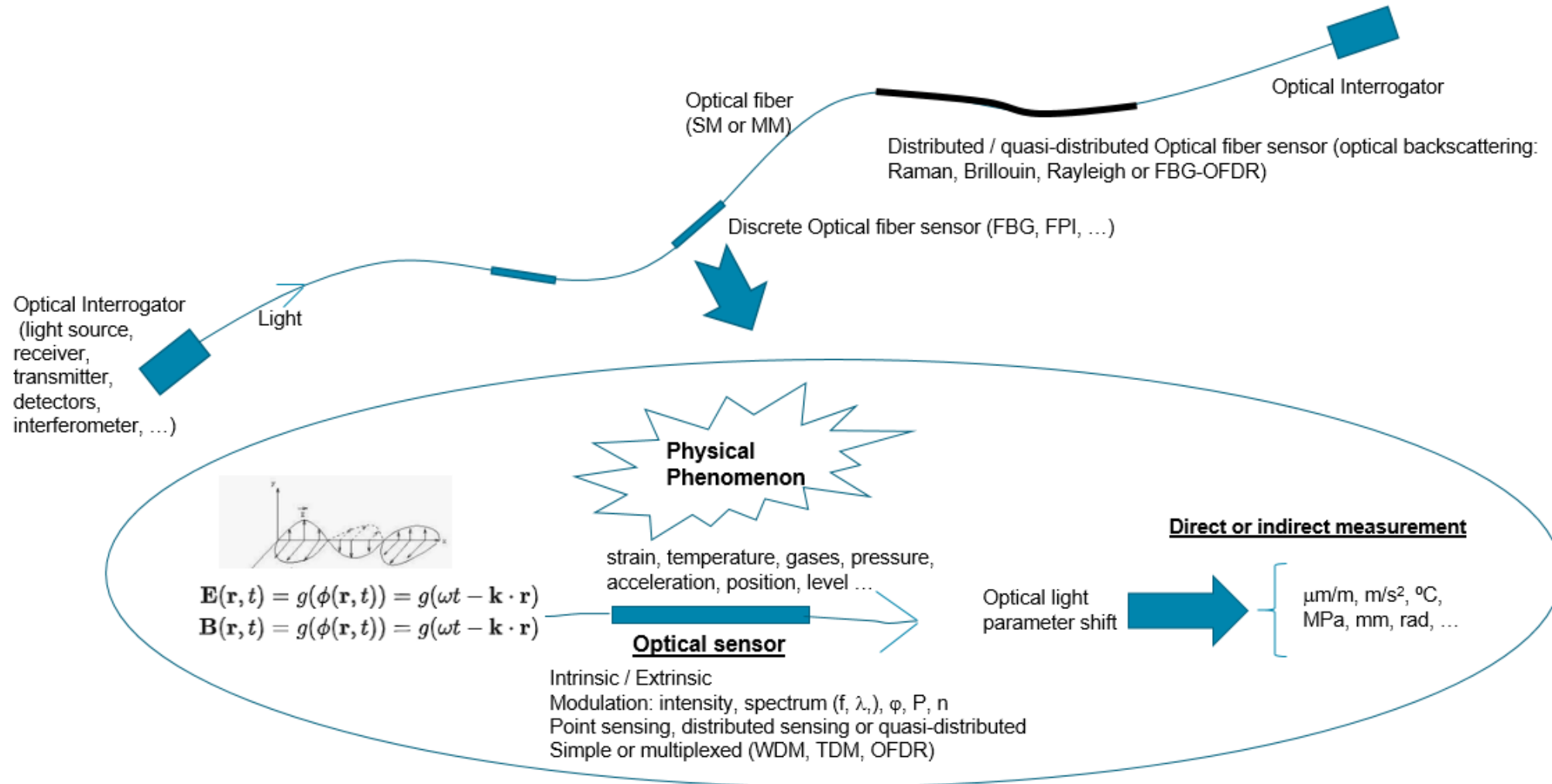
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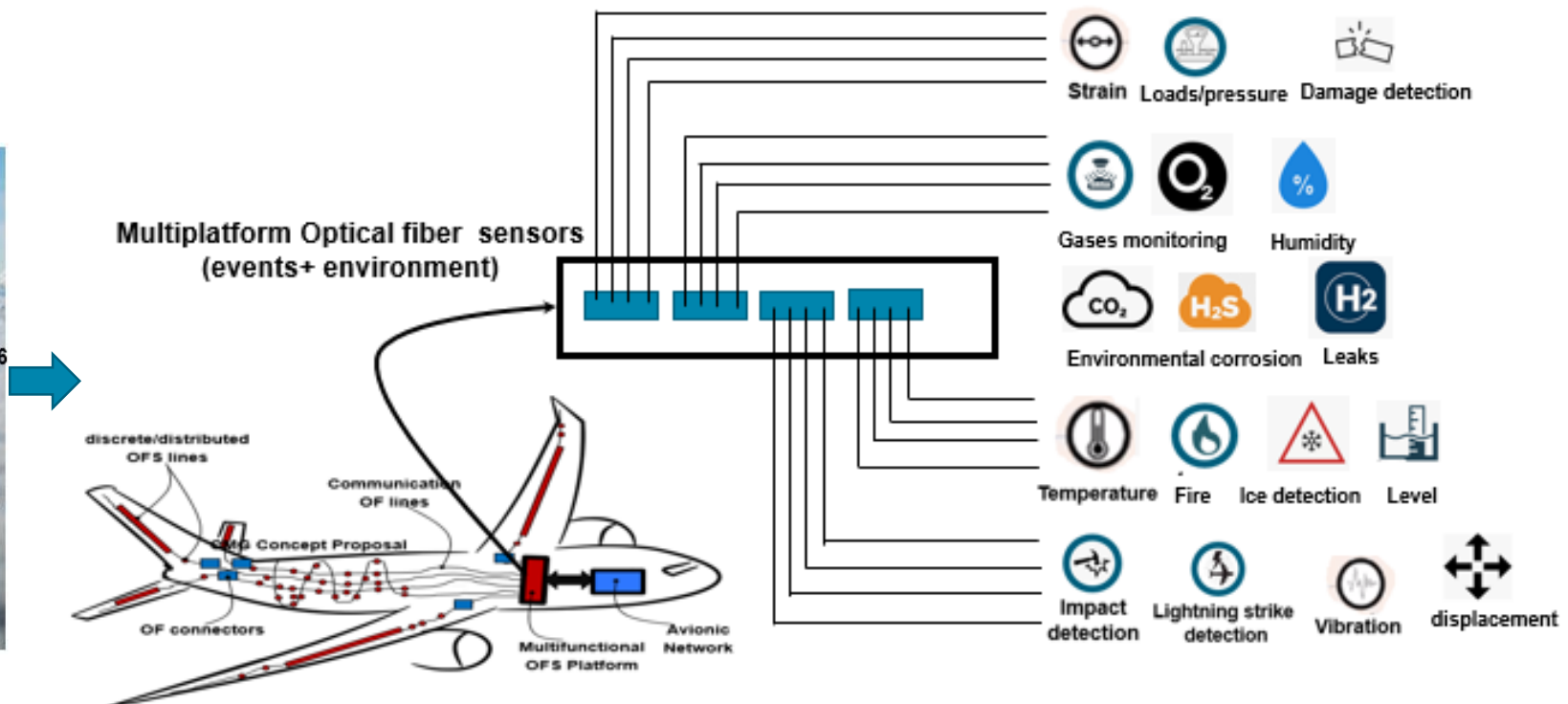
# Content

- Definition and potentials optical fiber sensors technologies
- Concept multifunctional optical fiber sensing platform for a/c applications
- Opportunities & challenges

# Definition and potentials optical fibre sensors



# Multifunctional optical fiber sensing platform



# Opportunities and challenges

- Opportunities
  - OFS to perform on-board measurement applied to many functions/ATAs (structures, avionics, cabin, fuel, ice, etc.)
  - Simplification, business case, weight reduction (cables, sensors, interfaces), reduce installation time, maintenance, ...
  - Multi-sensor advantages: synchronization and homogeneity of multiple measurements, new parameters by fusing data, environmental compensation, increase redundancy and reducing ambiguity or false alarms
  - When applied to the a/c fleet many possibilities to move forward to CBM, preventive maintenance, discover hidden patterns, unknown correlations, customer information preferences, ...
  - Many opportunities also for monitoring H2 propulsion a/c (temperature, leaks, strain, level, ...)
- Challenges
  - It is crucial the demonstration of reliability, robustness and durability of the global chain measurement process
  - Competitive technologies in terms of performance requirements (i.e: aliasing filter, temperature ranges, ...), miniaturization, optimal sensors, self-diagnostic capabilities and cost
  - Matching DALs (development assurance level) for each of the elementary functions and practical benefits for customer
  - At the end of the process it is not only data acquisition but to make data useful by adequate data processing and specific diagnostic and prognostic algorithms case by case

# Thank you

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