



The ESA Business Incubation Centre in Bavaria, Germany, was founded in 2009 and is managed by Anwendungszentrum GmbH Oberpfaffenhofen (AZO). Together with its partners the centre offers business start-up support as well as technical expertise in m

Advanced Navigation Solutions - ANavS

GNSS multi-frequency differential carrier phase receiver systems providing centimetre-level accuracy



Advanced Navigation Solutions

[Website](#)

Founded in 2011 by

- **Patryk Jurkowski**
- **Dr Patrick Henkel**

Incubation period

17-01-2010 to 16-01-2012



space solutions

Alumni

About Advanced Navigation Solutions - ANavS

ANAVS is a leading company in the research and development of future navigation systems with Galileo and GPS signals. ANAVS is known for its accurate and reliable attitude determination systems, and offers related hardware and software for both automobile and maritime applications. We perform sustained research, and develop and implement leading edge technologies such as triple frequency RTK and PPP with reliable integer ambiguity resolution.

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The challenge

Carrier phase differential GPS (CDGPS) is a widely used system for relative positioning. However, the carrier phases are periodic and require an ambiguity resolution which can be performed today only with a failure rate of a few percent due to the small carrier wavelength. This is far too much for safety of life critical applications.

The solution

ANAVS is developing differential Galileo/GPS receiver systems with a new integer ambiguity resolution technique that uses soft baseline constraints and multi-frequency code carrier combinations.

It enables a failure rate of less than $1e-7$, and can be used for a wide range of applications including freight stabilization of cranes and helicopters, navigation of trains and ships, for attitude determination systems, and bridge constructions.
