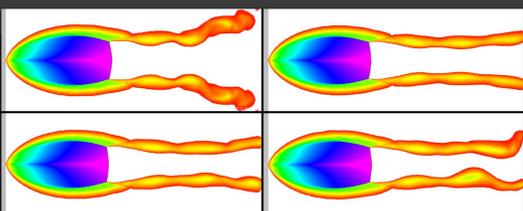


Laser Diode Velocimeter-Monitor Based on Self-Mixing Technique

Alexandra Alexandrova

Problem



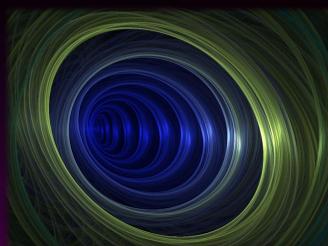
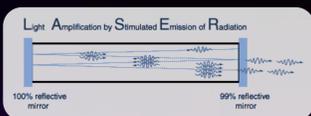
We can create jets of very fast moving gases. These jets are important for a number of accelerator-based applications. Detailed information about the gas jet is important for its optimization and the quality of the beam profile that can be measured with it.



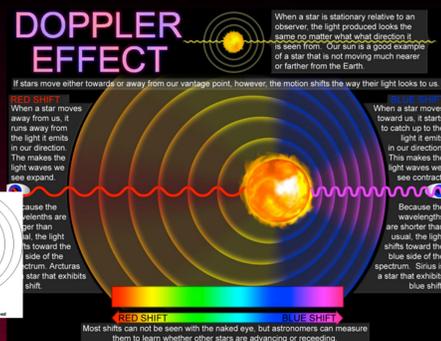
Solution: Self-Mixing Laser Diode

Which sounds complicated, but it uses some ideas that you may be familiar with...

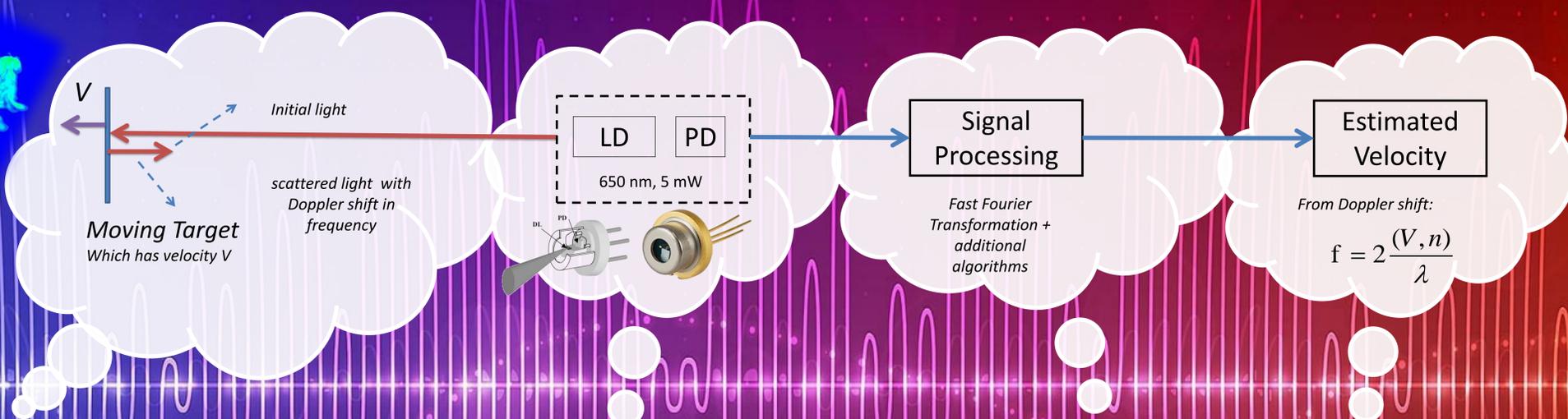
Example: Lasers



Example: Doppler Effect



Solving the problem needs different areas of your knowledge!



Physics

- Lasers
- Gas jets
- Light interaction
- Doppler effect
- Waves and Optics
- Thermal Physics
- Interference
- Materials

Engineering Experiments

- Electronics
- Design

Computer Programming

- Simulations
- Control software

Maths

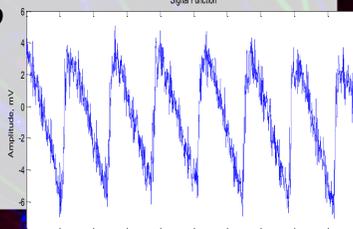
- Equations
- Graphs
- Models

Science!



$$V = ??$$

Our engineering, programming and mathematical skills are used together with our physics knowledge to calculate the velocity.



This poster shows some of the different skills that help scientists make new discoveries. Whether you are interested in physics, computers or maths; we need people just like you to improve the world around us. Don't be shy! We are waiting for young, brilliant and curious people to get involved in Science!

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