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# Laser scattering patternator for liquid flow measurement of industrial sprays

## Fact Sheet

### Project Information

Grant agreement ID: MAT1930030

Project closed

**Start date**

1 October 1993

**End date**

30 September 1996

**Funded under**

Specific research and technological development programme (EEC) in the field of measurements and testing, 1990-1994

**Total cost**

No data

**EU contribution**

No data

**Coordinated by**

Sener, Sistemas Marinos, S.A.



Spain

## Objective

Liquid sprays are found in multiple industrial environments. Apart from sprayers, humidifiers and agricultural applications, sprays are widely used by power generation technologies. In particular, internal combustion engines as well as gas turbines for ground and aeronautical applications and rocket engines introduce the liquid fuel as a spray of fine droplets to minimize fuel-oxidant mixing times.

The objective of this project is the development, construction and testing of a prototype novel instrument able to produce faster than present, more accurate flow measurements for the characterization of industrial, optically dense liquid sprays. To achieve this goal a non-intrusive analysis of the spray's light scattering activity will be performed by using two complementary experimental techniques:

- off-axis laser light droplet scattering (LD), to obtain at each point within the spray a measure of the number density;
- Phase-Doppler (PD) interferometry, to obtain the droplets size distribution and velocity.

Manipulation of both data sets will generate the spray flow information in the harsh optical conditions encountered in industrial sprays (typical droplets with diameters in the range  $10 < D < 150$   $\mu\text{m}$ ).

## Fields of science (EuroSciVoc)

[engineering and technology](#) > [environmental engineering](#) > [energy and fuels](#) > [liquid fuels](#)  
[natural sciences](#) > [physical sciences](#) > [optics](#) > [laser physics](#)



## Programme(s)

[FP3-MAT - Specific research and technological development programme \(EEC\) in the field of measurements and testing, 1990-1994](#)

## Topic(s)

Data not available

## Call for proposal

Data not available

## Funding Scheme

[CSC - Cost-sharing contracts](#)

# Coordinator



## Sener, Sistemas Marinos, S.A.

EU contribution

**No data**

Total cost

**No data**

Address

**Severo Ochoa**

**28760 Tres Cantos (Madrid)**

Spain

## Participants (4)

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### CRANFIELD UNIVERSITY

United Kingdom

EU contribution

**No data**

Address

**Wharley End, Cranfield**

**MK43 0AL Cranfield - Bedfordshire**

Total cost

**No data**

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### Office National d'Études et de Recherches Aérospatiales (ONERA)

France

EU contribution

**No data**

Address

**2 avenue Édouard Belin**

**31055 Toulouse**

Total cost

No data

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### UNIVERSIDAD POLITECNICA DE MADRID

 Spain

EU contribution

**No data**

Address

**Av. Ramiro de Maeztu 7 s/n**  
**28040 MADRID** 

Total cost

**No data**

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### Universidad Carlos III de Madrid

 Spain

EU contribution

**No data**

Address

**126,Calle Madrid**  
**28903 Getafe** 

Total cost

**No data**

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