



Superconducting Mass Spectrometry and Molecule Analysis

Fact Sheet

Project Information

SuperMaMa

Grant agreement ID: 860713

[Project website](#)

DOI

[10.3030/860713](https://doi.org/10.3030/860713)

Project closed

EC signature date

30 August 2019

Start date

1 January 2020

End date

30 June 2023

Funded under

EXCELLENT SCIENCE - Future and Emerging Technologies (FET)

Total cost

€ 2 841 418,75

EU contribution

€ 2 841 418,75

Coordinated by

UNIVERSITÄT WIEN



Austria

Project description

Cool quantum tools for biomolecule analysis

Analyzing the molecular content of a biological sample is the bread and butter of life sciences: DNA, peptides or proteins are identified by how massive they are and what building blocks they contain. This is what mass spectroscopy achieves if the molecules are isolated and highly charged in high vacuum. SuperMaMa will develop technologies to extend these capabilities for singly charged and neutral molecules. The combination of chemical functionalization, new mass filtering methods, cooling close to absolute zero and ultrafast laser light shall provide ultimate control over the motion and charge state of peptides and protein. Integrating a superconducting

nanowire array with cryogenic onboard electronics will result in an ultrafast quantum camera as a universal particle detector – here first developed for biomolecules to enhance mass spectrometry and shall open new avenues in optical spectroscopy and molecular quantum interferometry.

Fields of science (EuroSciVoc)

[natural sciences](#) > [biological sciences](#) > [biochemistry](#) > [biomolecules](#) > **[proteins](#)**

[natural sciences](#) > [chemical sciences](#) > [analytical chemistry](#) > **[calorimetry](#)**

[natural sciences](#) > [physical sciences](#) > [quantum physics](#) > **[quantum optics](#)**

[natural sciences](#) > [chemical sciences](#) > [analytical chemistry](#) > **[mass spectrometry](#)**

[natural sciences](#) > [physical sciences](#) > [optics](#) > **[spectroscopy](#)**



Keywords

[Mass spectrometry.](#)

[superconducting nanowire detectors](#)

[photo-active protein tags](#)

[molecular spectroscopy.](#)

[preparation](#)

[detection and analysis of neutral protein beams](#)

[cryogenic integrated electronics](#)

Programme(s)

[H2020-EU.1.2. - EXCELLENT SCIENCE - Future and Emerging Technologies \(FET\)](#)

MAIN PROGRAMME

[H2020-EU.1.2.1. - FET Open](#)

Topic(s)

[FETOPEN-01-2018-2019-2020 - FET-Open Challenging Current Thinking](#)

Call for proposal

[H2020-FETOPEN-2018-2020](#) 

[See other projects for this call](#)

Sub call

H2020-FETOPEN-2018-2019-2020-01

Funding Scheme

[RIA - Research and Innovation action](#)

Coordinator



UNIVERSITAT WIEN

Net EU contribution

€ 768 572,50

Total cost

€ 768 572,50

Address

UNIVERSITATSRING 1

1010 Wien

 **Austria** 

Region

Ostösterreich > Wien > Wien

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Participants (4)



SINGLE QUANTUM BV

 **Netherlands**

Net EU contribution

€ 583 391,25

Address

DELFGAUWSEWEG 271

2628 ER Delft 

SME 

Yes

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 583 391,25



ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE

 Switzerland

Net EU contribution

€ 739 885,00

Address

BATIMENT CE 3316 STATION 1

1015 Lausanne 

Region

Schweiz/Suisse/Svizzera > Région lémanique > Vaud

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 739 885,00



UNIVERSITAT BASEL

 Switzerland

Net EU contribution

€ 379 683,75

Address

PETERSPLATZ 1

4051 Basel 

Region

Schweiz/Suisse/Svizzera > Nordwestschweiz > Basel-Stadt

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 379 683,75



SPECTROMETRY VISION BV

 Netherlands

Net EU contribution

€ 369 886,25

Address

TELEVISIEWEG 40

1322 AM Almere 

SME 

Yes

Region

Oost-Nederland > Flevoland > Flevoland

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 369 886,25

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European Union, 2025

