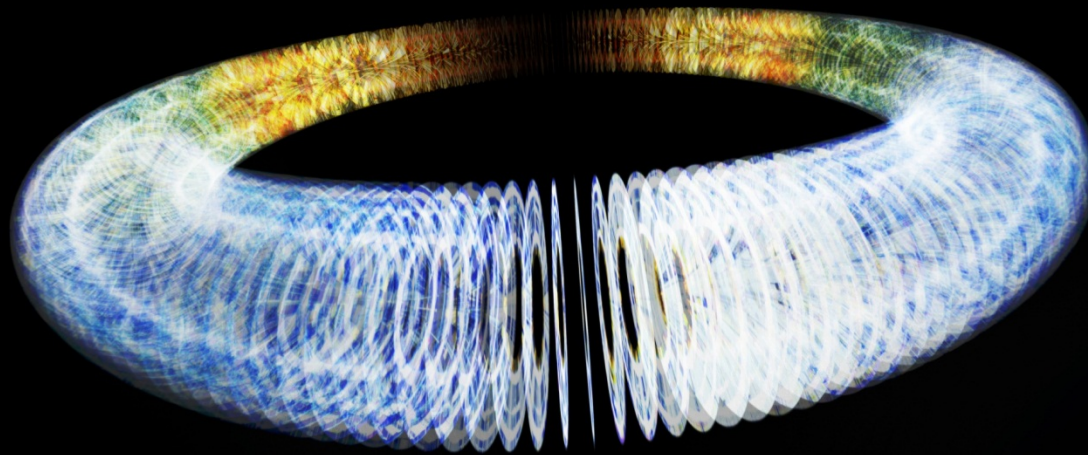


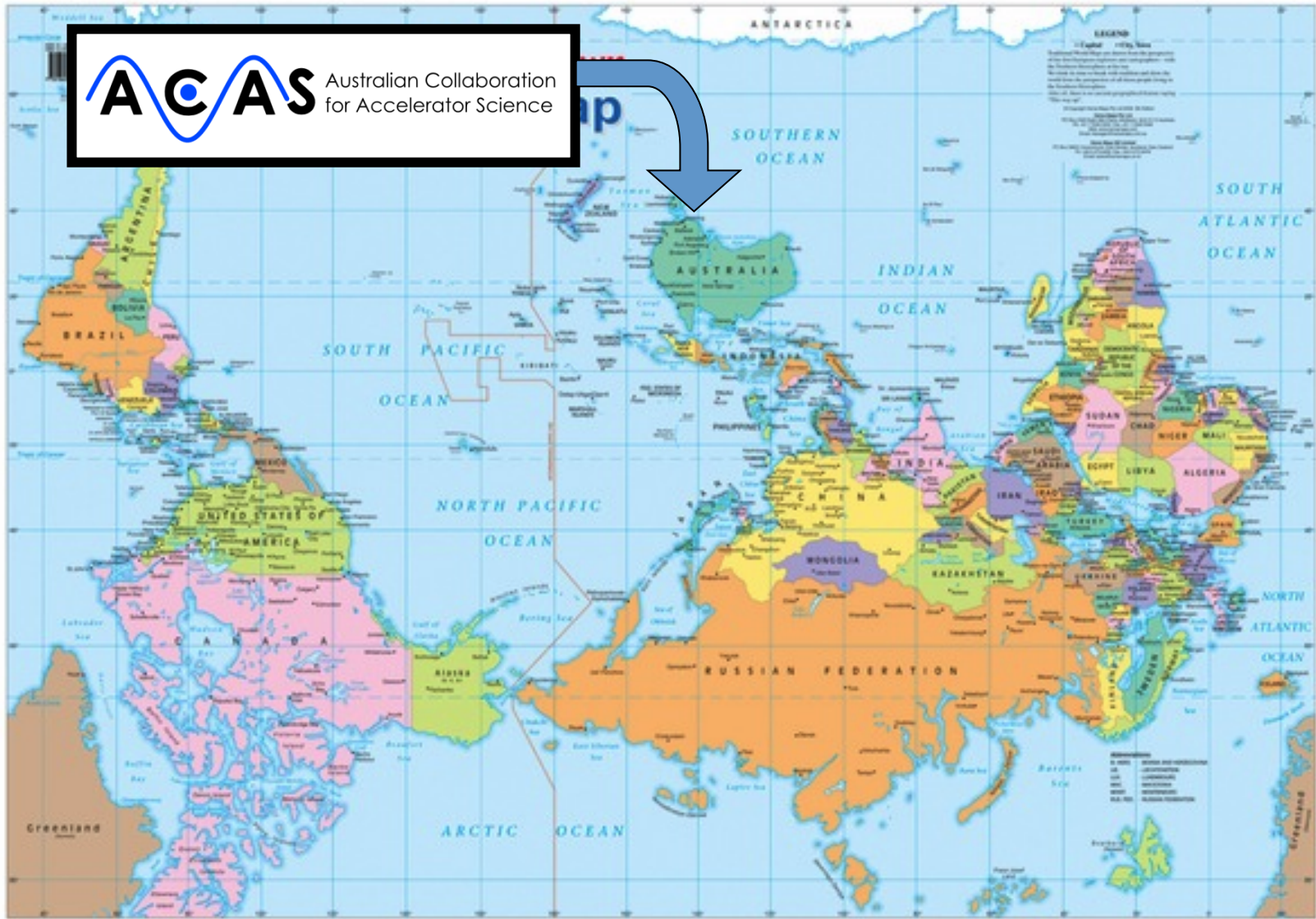
# Australian Collaboration for Accelerator Science

Roger Rassool and Mark Boland



3-11-11

**ACAS** Australian Collaboration  
for Accelerator Science



Australian Synchrotron 



**ACAS** Australian Collaboration  
for Accelerator Science



THE UNIVERSITY OF  
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### CLIC/CTF3 goes truly global

The Australian Collaboration for Accelerator Science (ACAS) – a new Australian institute for accelerator science launched in July – has become the latest participant in the CLIC/CTF3



Roger Rassool

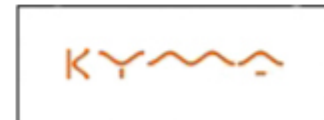
collaboration, working on the Compact Linear Collider (CLIC) study for a future linear electron–positron collider and the CLIC Test Facility 3 (CTF3) at CERN. ACAS is a collaboration between the Australian National University, the Australian Nuclear Science and Technology Organization, the Australian Synchrotron and the University of Melbourne. This brings not only a new country – Australia – to the collaboration, but equally a new continent and even a new hemisphere.

The agreement, which is an addendum to the standard CLIC/CTF3 memorandum of understanding, specifies the contribution of ACAS to the CLIC/CTF3 Collaboration. This focuses on studies for the damping rings and for the accelerating RF test modules. The agreement was signed on 26 August by the ACAS director, Roger Rassool from the University of Melbourne, and witnessed by CERN's director-general, Rolf Heuer.



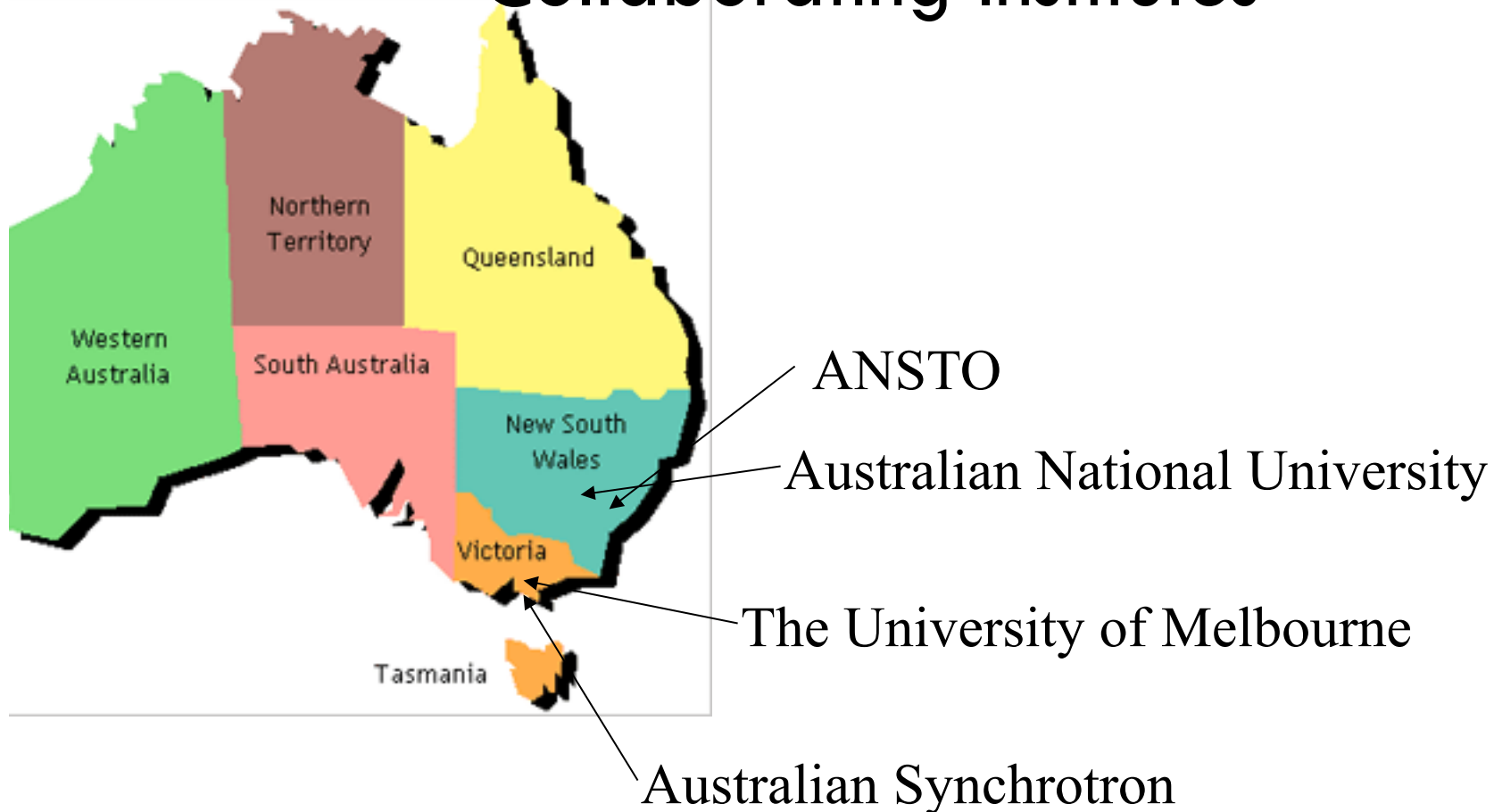
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## FEATURED COMPANIES





## Collaborating Institutes



## Relevant Team Members

Kent Wootton (PhD student)

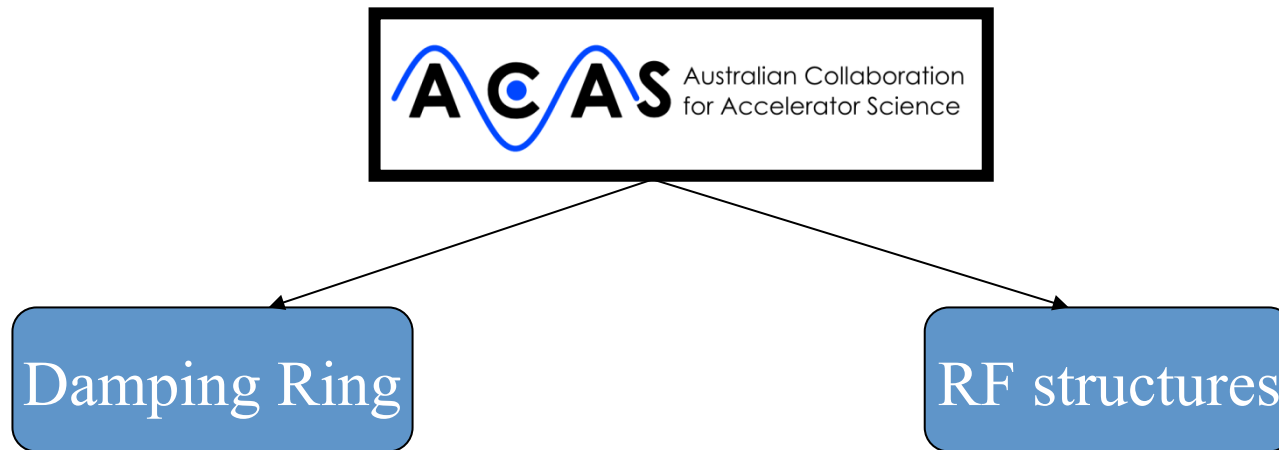
Daniel Ogburn (PhD Student)

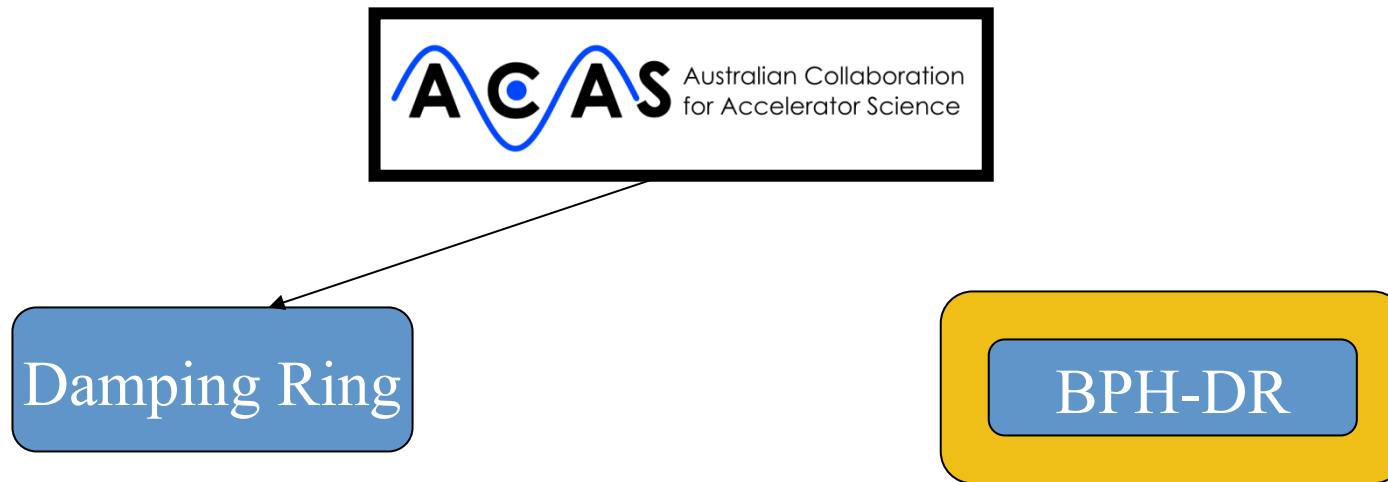
Tessa Charles (Masters)

Ashley French (Technician)

Mark Boland - Australian Synchrotron

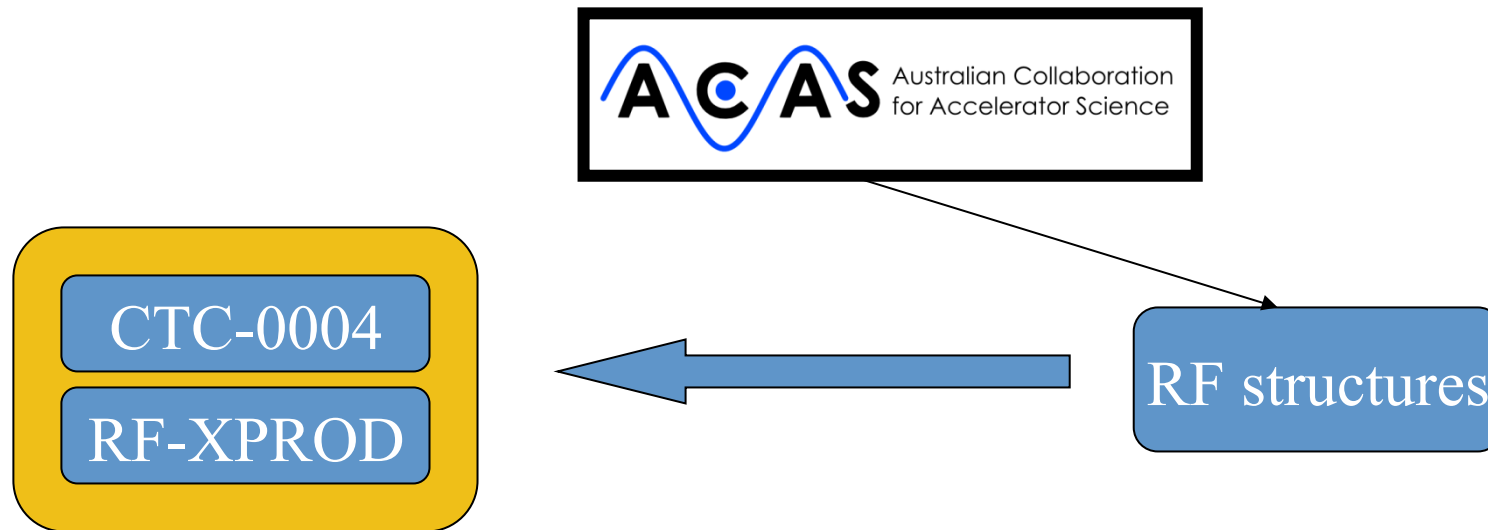
Roger Rassool - Melbourne University





## CLIC DR modelling

- To demonstrate the feasibility of an ultra low emittance damping ring for CLIC
- Explore Alignment sensitivities

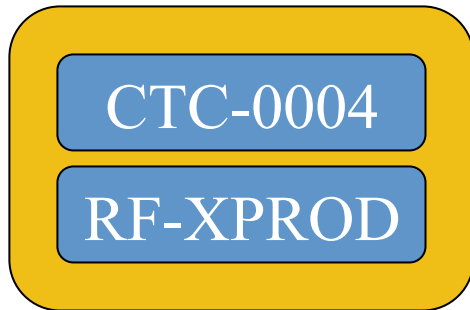


ACAS contributed a full time technician for 1 year based at CERN to assist with technical tasks:


Including:

- Procurement of RF components.
- Liaison with the design team for the lifting devices-transport and electron beam welding frame.
- Specialized components/ fittings, ex: bearings-water connectors for cooling-vacuum
- Sourcing of services - specialized materials for the bonding and brazing structures
- Inventory of the delivered parts.
- Assembly of the PETS and Accelerating Structures










**Flow Induced Vibrations of the  
Compact  
Linear Collider Accelerating**



Tessa Charles<sup>1</sup>  
Kris Ryan<sup>1</sup> and Germana Riddone<sup>2</sup>

1 Department of Mechanical Engineering, Monash University  
2 European Organization for Nuclear Research (CERN) Switzerland

Tessa Charles – Final Year Project  
Presentation 29/10/2011

# Flow Induced Vibrations of the Compact Linear Collider Accelerating Structures

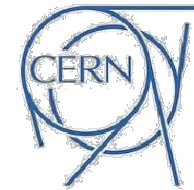


Tessa Charles<sup>1</sup>

Kris Ryan<sup>1</sup> and Germana Riddone<sup>2</sup>

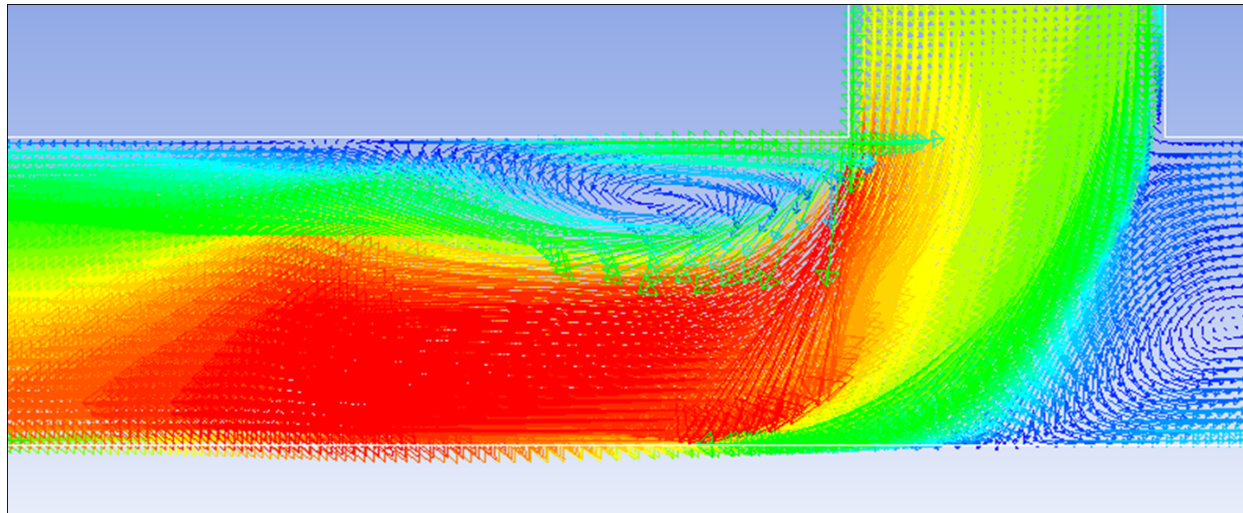
<sup>1</sup> Department of Mechanical Engineering, Monash University

<sup>2</sup> European Organization for Nuclear Research (CERN) Switzerland



# Tessa's Findings..

## Kelvin Helmholtz Instability



- Shear layer (Kelvin Helmholtz) instability develops into a convective instability.
- Packets of turbulence convect down the cooling channel, in quasi-periodic pattern.
- Vibration amplitudes calculated for various velocity fluctuations.



## Relevant contributions for 2012-\*

We believe that we can make a similar contribution, which will include:

- Technical support: 0.5 FTE based at CERN
- + access to specialists such as
  - alignment engineers
  - assembly technicians.
- >2 PhD students
- + access to workshop and machining facilities

\*Naturally, we will continue to grow our program.





Le tram 18 au terminus du CERN. MAUD FERRAND

## Le tram 18, nouvel «accélérateur» du CERN

### Sa mise en service entre Coutance et le CERN a changé la vie des usagers

Gérard Lobeau n'a pas choisi la facilité. Il habite Excenevex et travaille au CERN. La galère deux fois par jour, une heure et demie en voiture dans chaque sens. Un goût de bouchon et les nerfs à vif. Mais le tram 18 est arrivé...

Le technicien gare sa voiture à Hermance, prend le bus jusqu'à Rive, un tram ou un bus pour se rapprocher de Coutance. La nouvelle ligne le pousse jusqu'à sa destination, où il a le CERN sous les yeux. Le tram s'arrête à la hauteur

longée jusqu'à Saint-Genis. Tout comme Patrice Plojoux: «Il y a de la volonté des deux côtés.» Quant à la nouvelle ligne, le président des TPG n'a pas entendu d'échos négatifs sur ce nouvel «accélérateur» du CERN. Vingt-trois minutes suffisent à rejoindre le CERN au départ de Coutance. Passé le Bouchet, le tram roule à vive allure avant de s'offrir une partie de campagne.

Asleg French, un Australien de Melbourne, est ravi. Il habite Vessy et dit apprécier le confort.

Satisfaction d'employés de Thonex, qui ont abandonné leurs voitures. Son de cloche moins enthousiaste d'un des papes du LHC. Le Dr Vinod Chohan descend du tram

