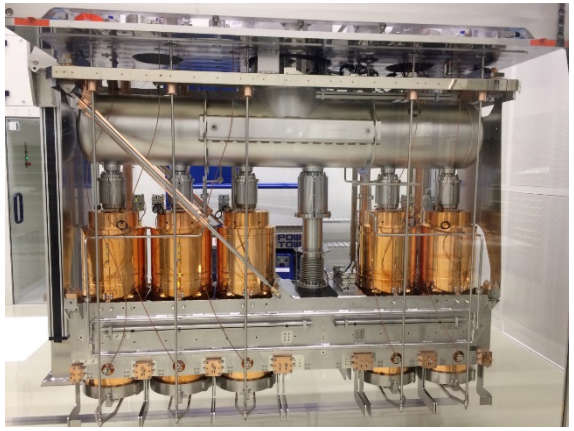
WG3: flux sensitivity Summary



A. Miyazaki and M. Checchin

TTC/ARIES topical workshop @ CERN

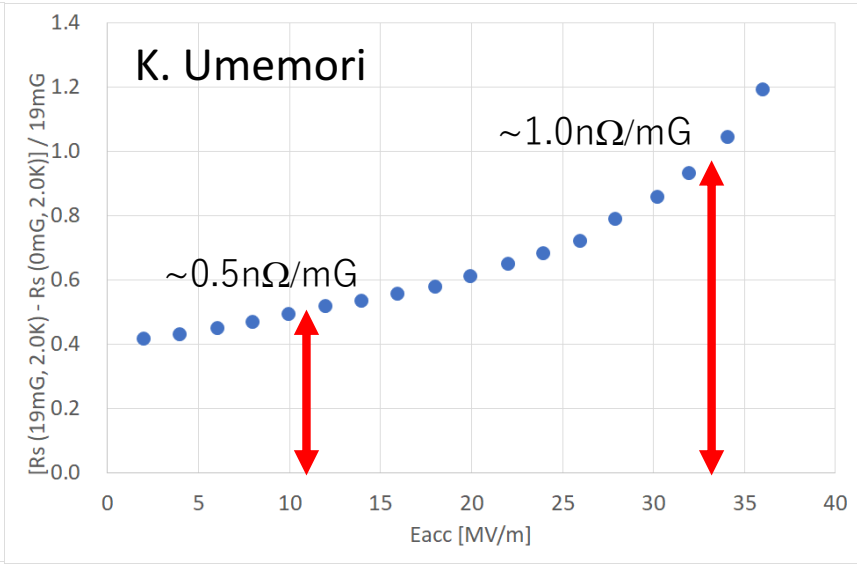
09:00	**Introduction to the session**	*Akira Miyazaki*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	09:00 - 09:03	
	Trapped flux sensitivity studies as a function of: treatment, RF field and frequency	*Martina Martinello*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	09:03 - 09:20	
	Overview of flux trapping at Cornell	*James Maniscalco*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	09:20 - 09:37	
	Sensitivity to trapped flux in high-purity large-grain niobium based on cavity measurements	*Rongli Geng*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	09:37 - 09:54	
10:00	**Flux trapping investigation in superconducting samples via the quadrupole resonator**	*Marco Arzeo*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	09:54 - 10:11	
	Reports on sensitivity measurements at KEK	*Kensei Umemori*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	10:11 - 10:18	
	Optimization of High Temperature N2 Doping for Minimization of Sensitivity to Trapped Flux and Maximization of Quench Fields	*Daniel Bafia*	

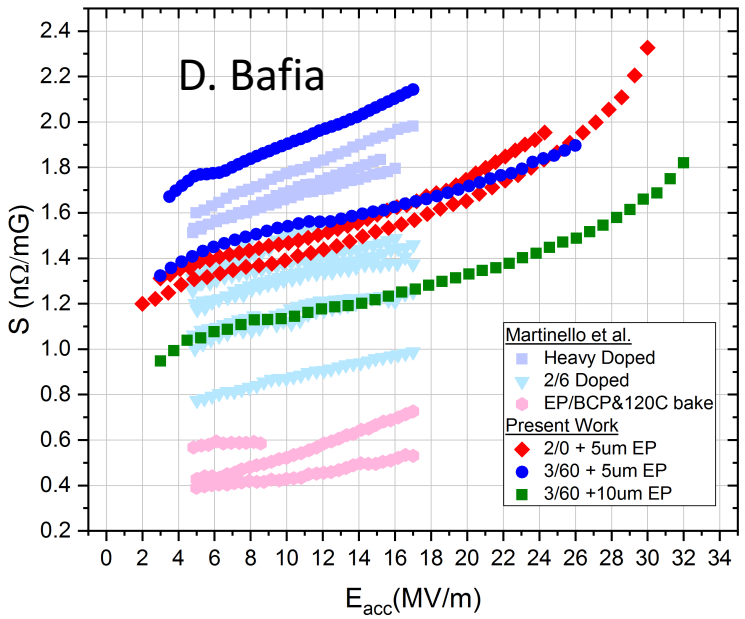
Collection of experimental data from all over the world

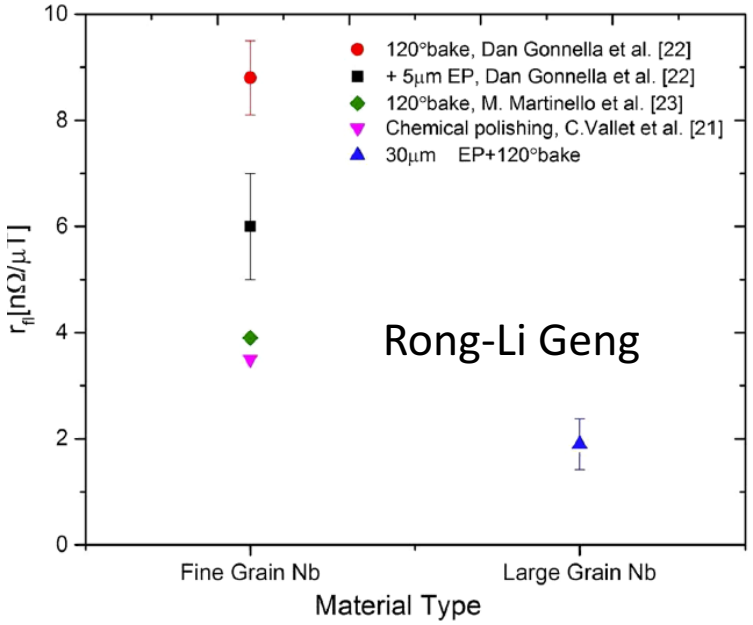
11:00	**Dissipation caused by oscillating vortices in the SRF cavities**	*Alexander Gurevich*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	11:00 - 11:25	
	Trapped flux sensitivity in the low amplitude radio-frequency regime	*Dr Mattia Checchin*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	11:25 - 11:42	
	A simple model for the RF field dependence of the trapped flux sensitivity based on a non-linear pinning force	*Ruggero Vaglio*	
12:00	**Vortex dynamics and hysteretic flux losses due to pinning**	*Danilo Liarte*	
	30-7-018 - Kjell Johnsen Auditorium, CERN	11:59 - 12:16	
	Discussion		
	30-7-018 - Kjell Johnsen Auditorium, CERN	12:16 - 12:30	

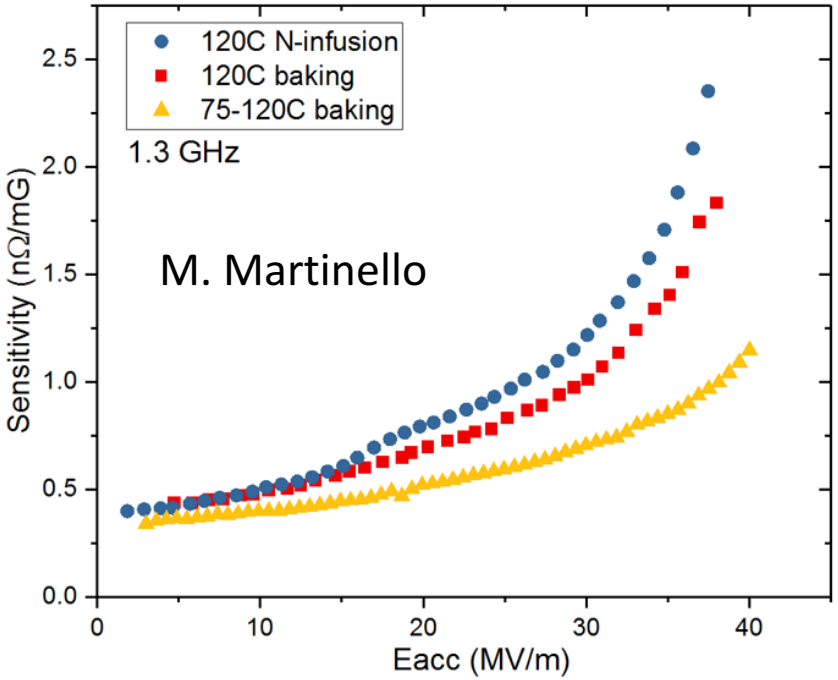
Review on existing theoretical models

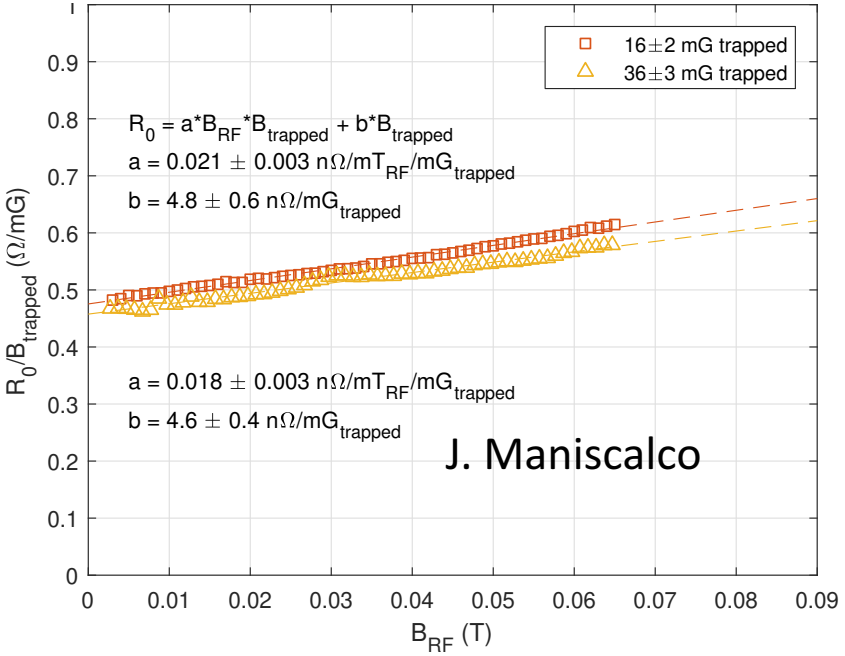
Newly published extensions in a model

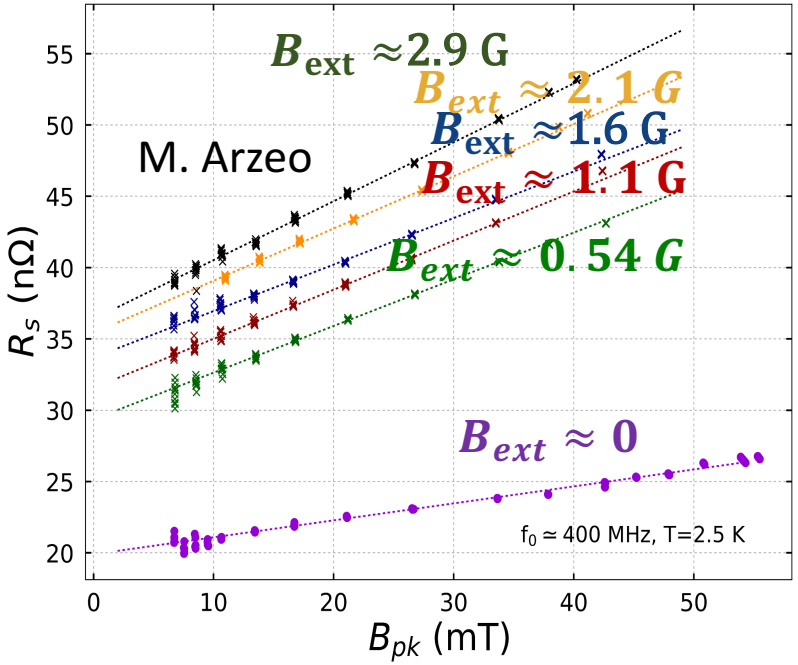








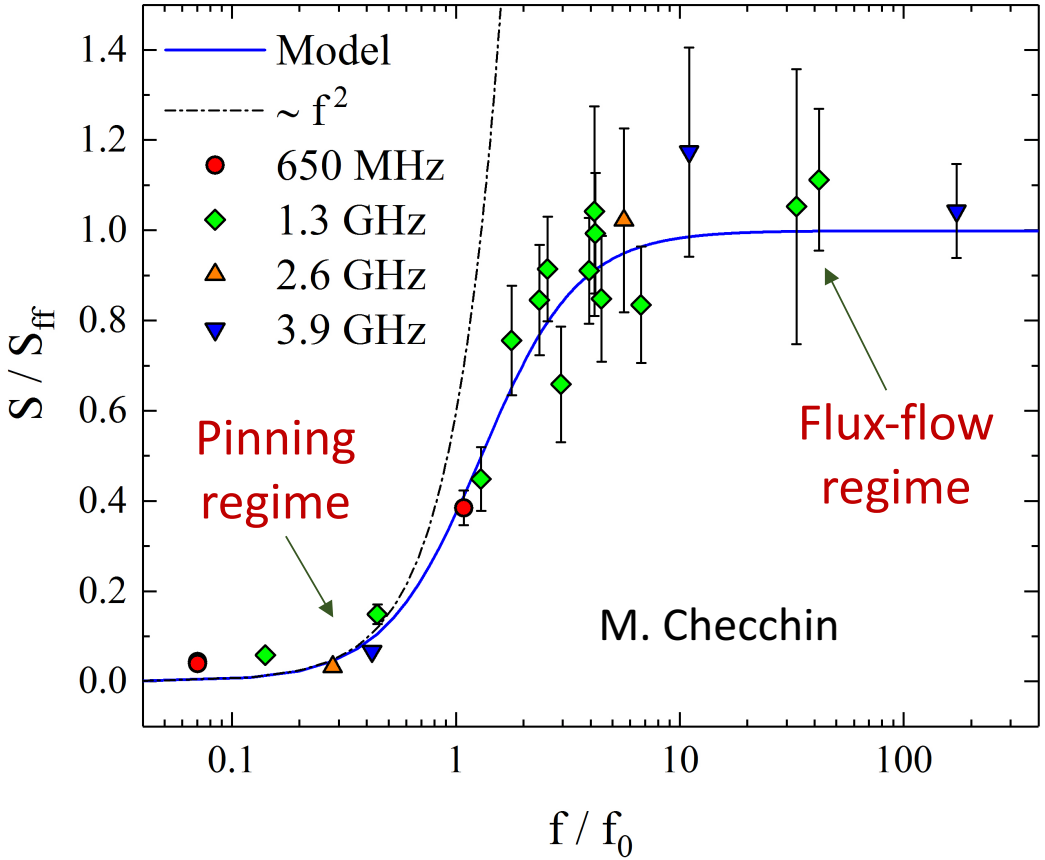




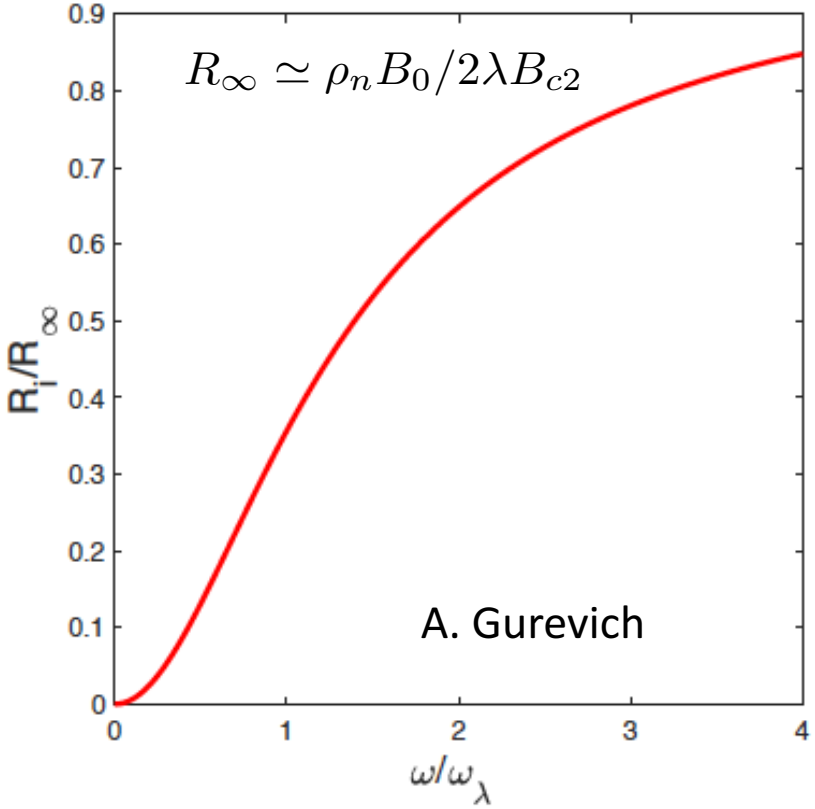
Multiple cooldowns, same sensitivity!

Low RF models

Without tension



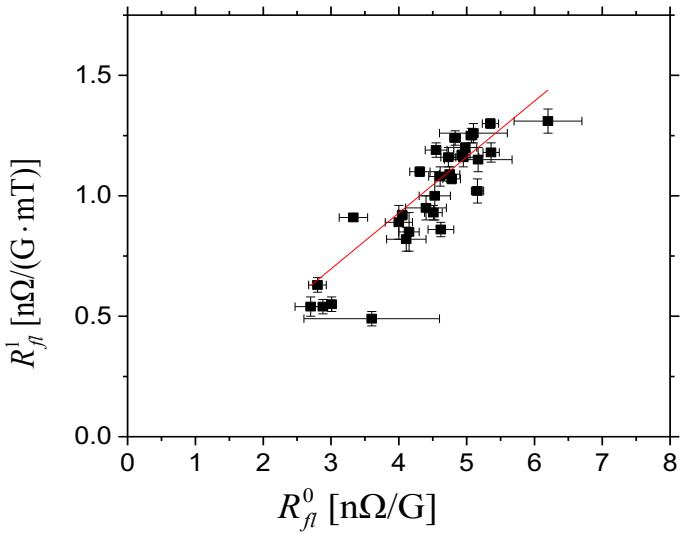
With tension

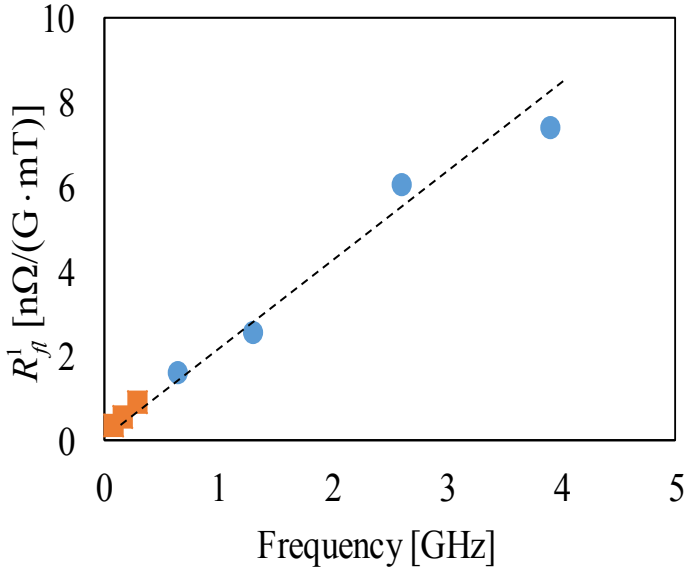


Non-harmonic potential

Without tension

R. Vaglio



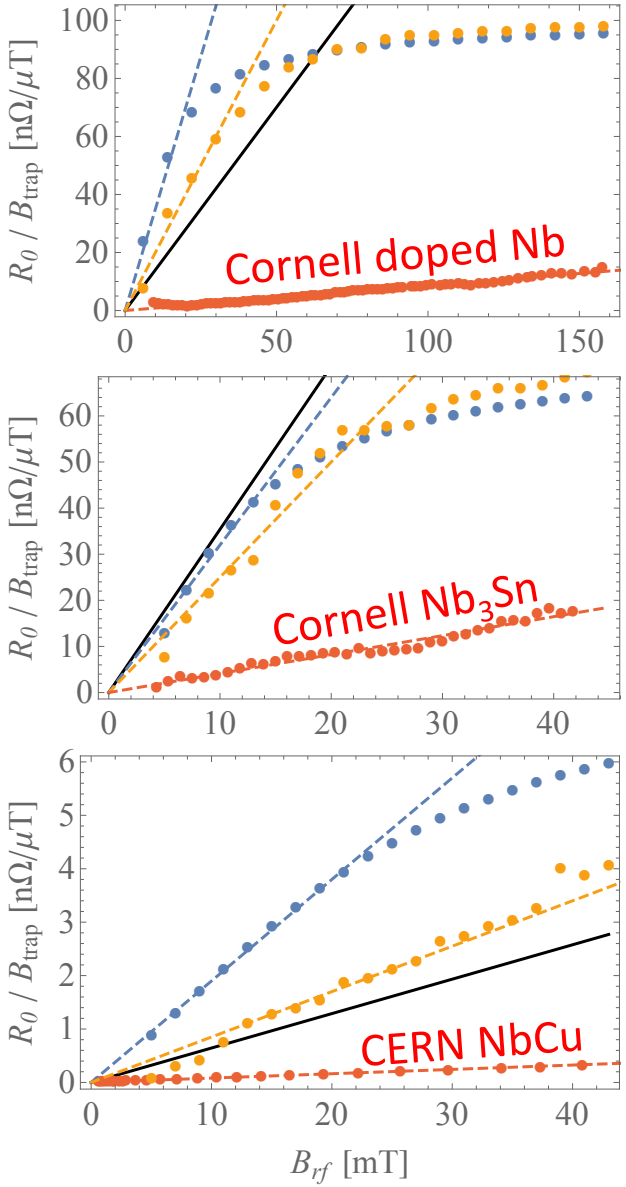


Non-linear models at higher RF fields

Collective weak pinning

With tension

D. Liarte



Possible future work

- More realistic physical model of pinning?
  - Collaboration with pinning people in the DC world?
  - Direct measurement? How and with whom?
  - How much is the pinning force in Nb, “strong”, or “weak”?
- Statistical analysis of other cavities?
  - Rs1 vs Rs0
- Any ideas?