

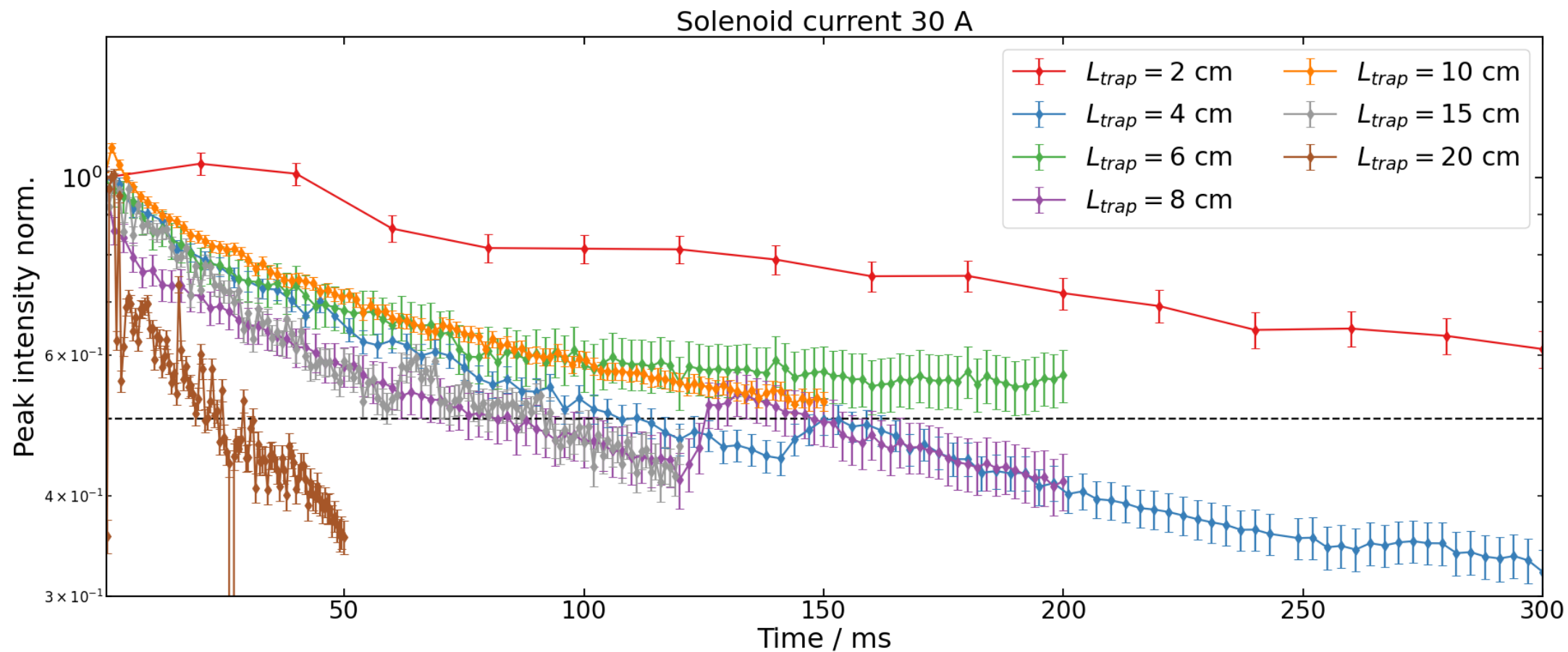
LhARA Capture Meeting

18th November 2021

Titus Dascalu

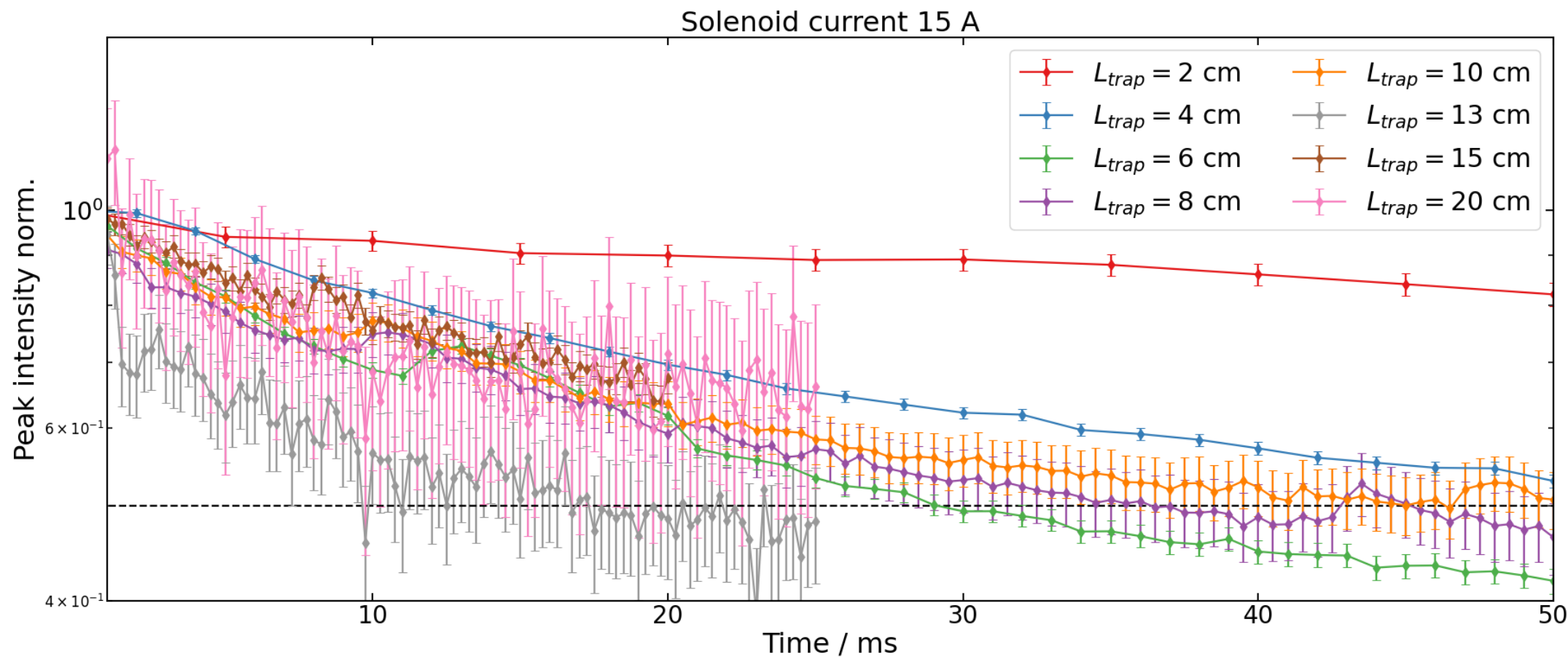
Expansion rate

- Investigate the time it takes for the peak density to drop by a half

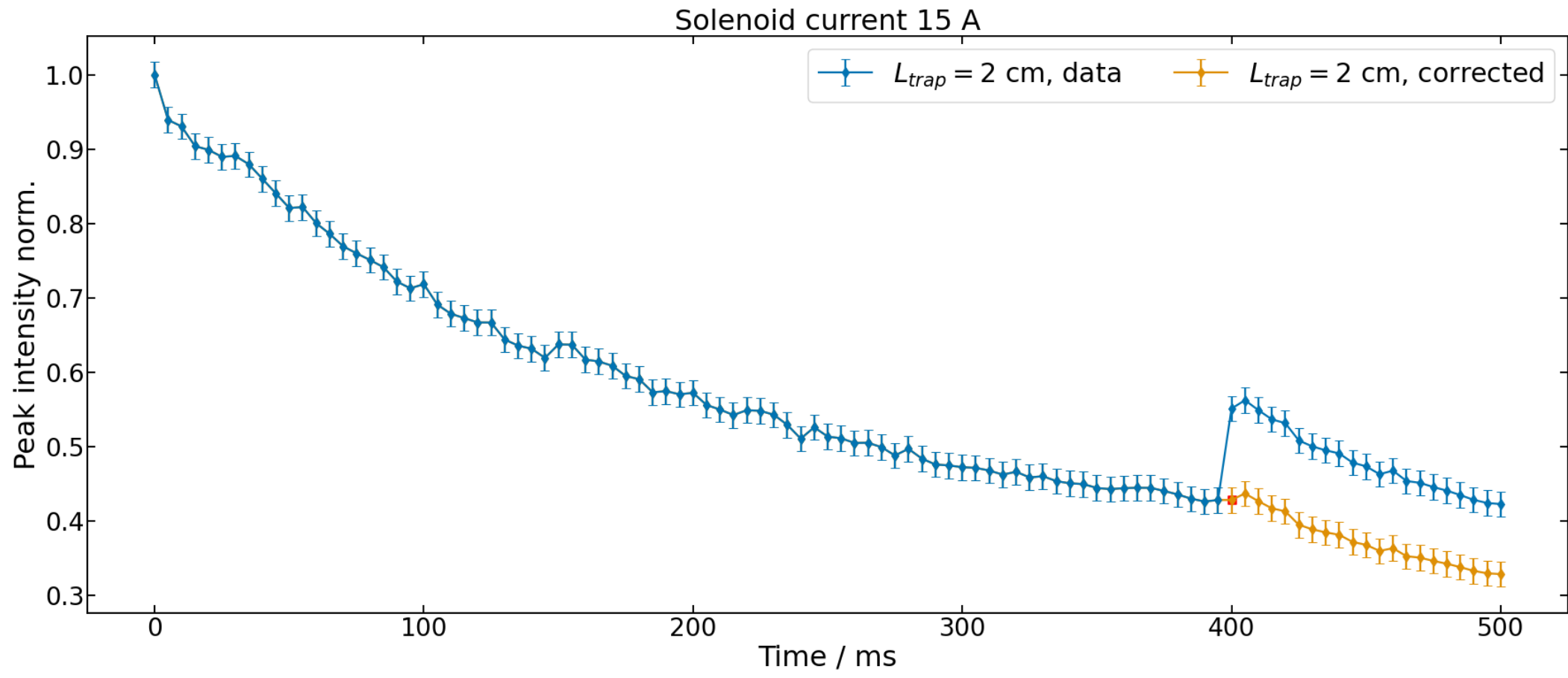


Expansion rate

- Investigate the time it takes for the peak density to drop by a half



Expansion rate



- Added references to the work of other groups on the wiki

<https://ccap.hep.ph.ic.ac.uk/trac/wiki/Research/GaborLens/Literature>

Work of other groups

Early

- "Measurements on a Gabor lens for neutralizing and focusing a 30 keV proton beam" (J.A. Palkovic, 1988)
- "Comparison of Gabor lens, gas focusing, and electrostatic quadrupole focusing for low-energy ion beams" (M.Reiser, 1989)

Frankfurt

- "Investigation of Space Charge Compensated Transport by Use of a Gabor Plasma Lens" (J.Pozimski, 1996)
- "Space charge lenses for particle beams" (J.Pozimski, 2005)
- "Optical diagnostic on Gabor plasma lenses" (K.Schulte, 2008)
- "Space charge lens for focusing heavy ion beams" (K.Schulte, 2010)
- "Investigation of diagnostic techniques on a nonneutral plasma" (K.Schulte, 2011)
- "Studies on electron cloud dynamics for an optimized space charge lens design" (K.Schulte, 2011)
- "Electron cloud dynamics in Gabor space charge lens" (K.Schulte, 2012)
- "Experimental studies of stable confined electron clouds using Gabor lenses" (O.Meusel, 2013)
- "High-current beam transport simulations including Gabor lenses in varying non-neutral plasma states" (M.Droba, 2013)
- "Gabor lens performance studies at the GSI high current test injector" (K.Schulte, 2013)
- "Beam transport experiments using Gabor lenses" (K.Schulte, 2014)
- "Beam transport experiments using Gabor lenses" (K.Schulte, 2014)
- "Investigation of electron beam assisted density boosting in plasma traps using the example of a Gabor plasma lens" (C.Beberweil, 2017)

SLAC

- "Propagation of Short Electron Pulses in a Plasma Channel" (N.Barov, 1998)
- "High energy density plasma science with an ultrarelativistic electron beam" (C.Joshi, 2002)
- "Ultrarelativistic-Positron-Beam Transport through Meter-Scale Plasmas" (M.J.Hogan, 2003)
- "Halo Formation and Emittance Growth of Positron Beams in Plasmas" (P.Muggli, 2008)

LBNL

- Active plasma lenses

- "Active Plasma Lensing for Relativistic Laser-Plasma-Accelerated Electron Beams" (J.van Tilborg, 2015)
- "Nonuniform discharge currents in active plasma lens" (J.van Tilborg, 2017)

CERN/CLEAR

- Active plasma lenses

- "Emittance Preservation in an Aberration-Free Active Plasma Lens" (C.A.Lindstrom, 2018)
- "Overview of the CLEAR plasma lens experiment" (C.A.Lindstrom, 2018)

SPARC-Lab (Frascati, IT)

- Active plasma lenses

- "Experimental characterization of active plasma lensing for electron beams" (R.Pompili, 2017)
- "Overview of plasma lens experiments and recent results at SPARC-LAB" (E.Chiadroni, 2018)
- "Plasma lens-based beam extraction and removal system for plasma wakefield acceleration experiments" (R.Pompili, 2019)

Other

- "Invited review article: The electrostatic plasma lens" (A.Goncharov, 2013)