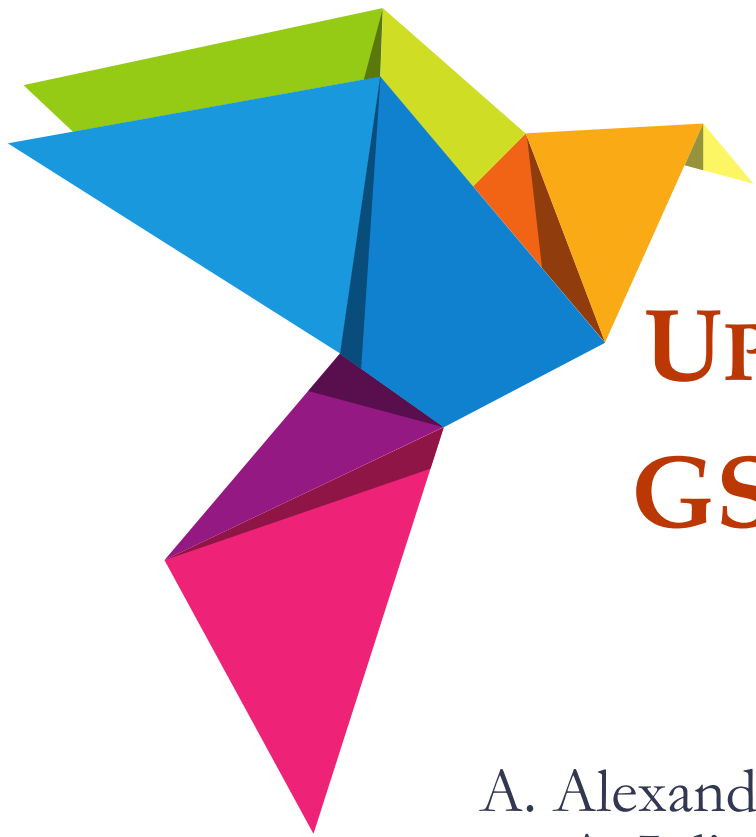




UPDATE ON THE ANALYSIS OF GSI2 ^{16}O AT 400 MeV/N ON C DATA TAKING

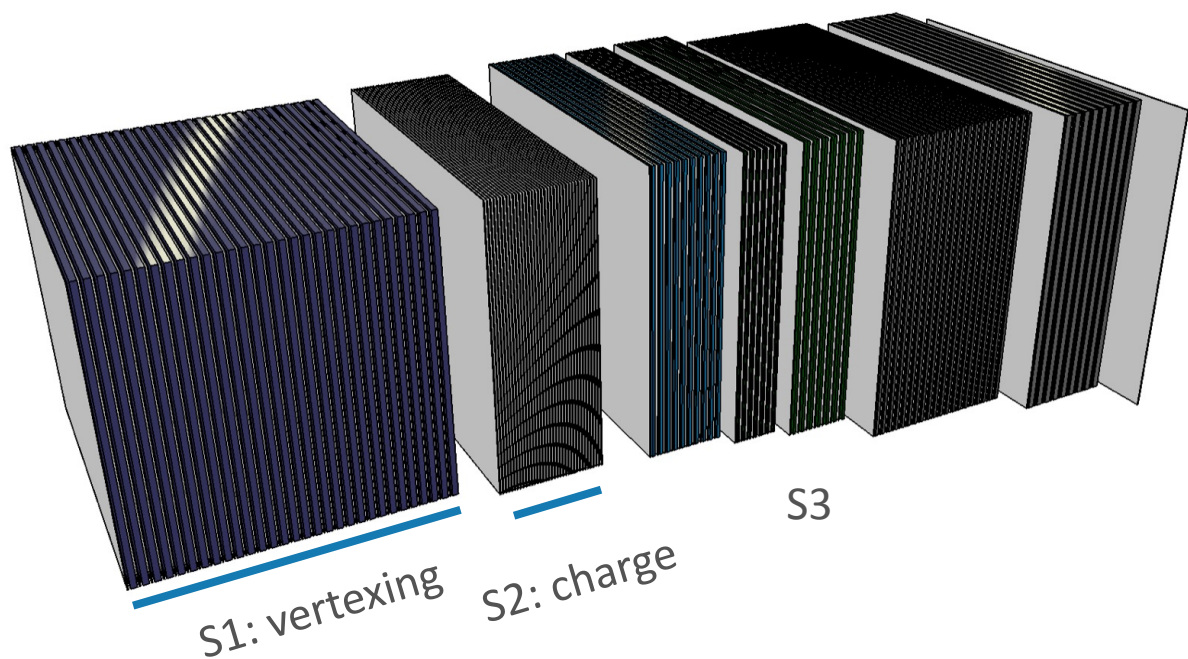
A. Alexandrov, V. Boccia, A. Di Crescenzo, G. De Lellis, G. Galati,
A. Iuliano, A. Lauria, M. C. Montesi, A. Pastore, V. Tioukov

Università di Napoli “Federico II”, INFN Napoli

Università di Bari “Aldo Moro”, INFN Bari

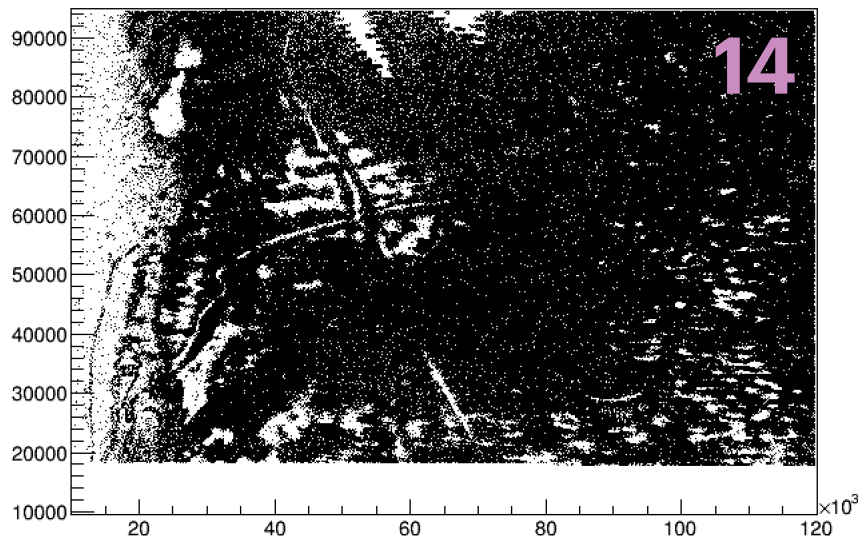
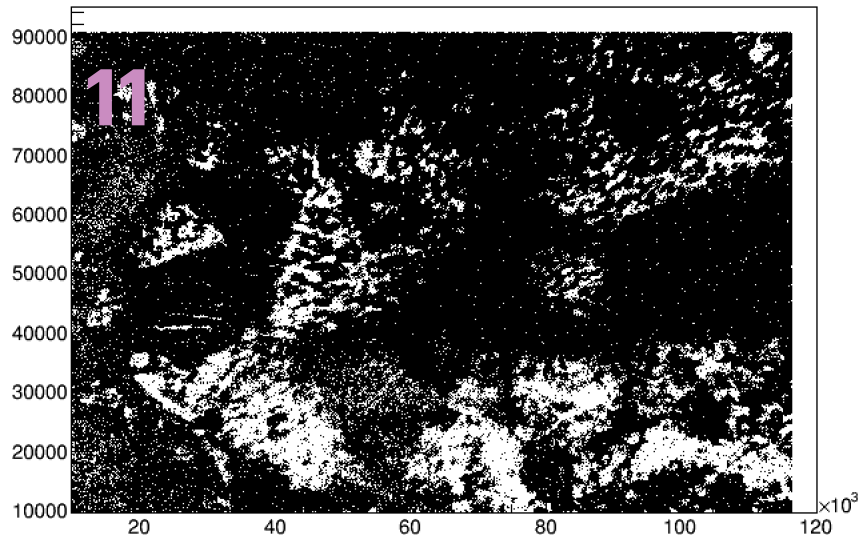
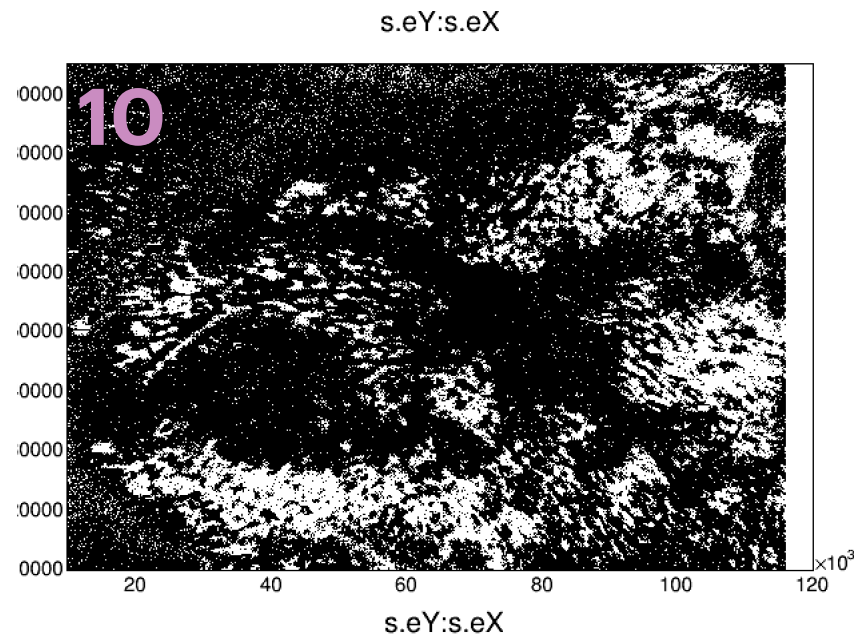
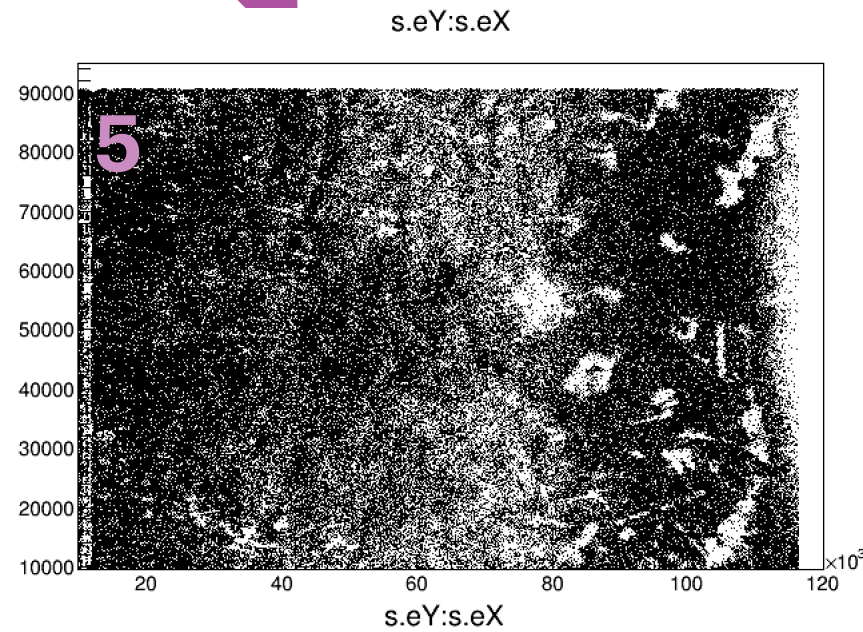
5/10/2022, Physics FOOT Meeting
ZOOM

Summary



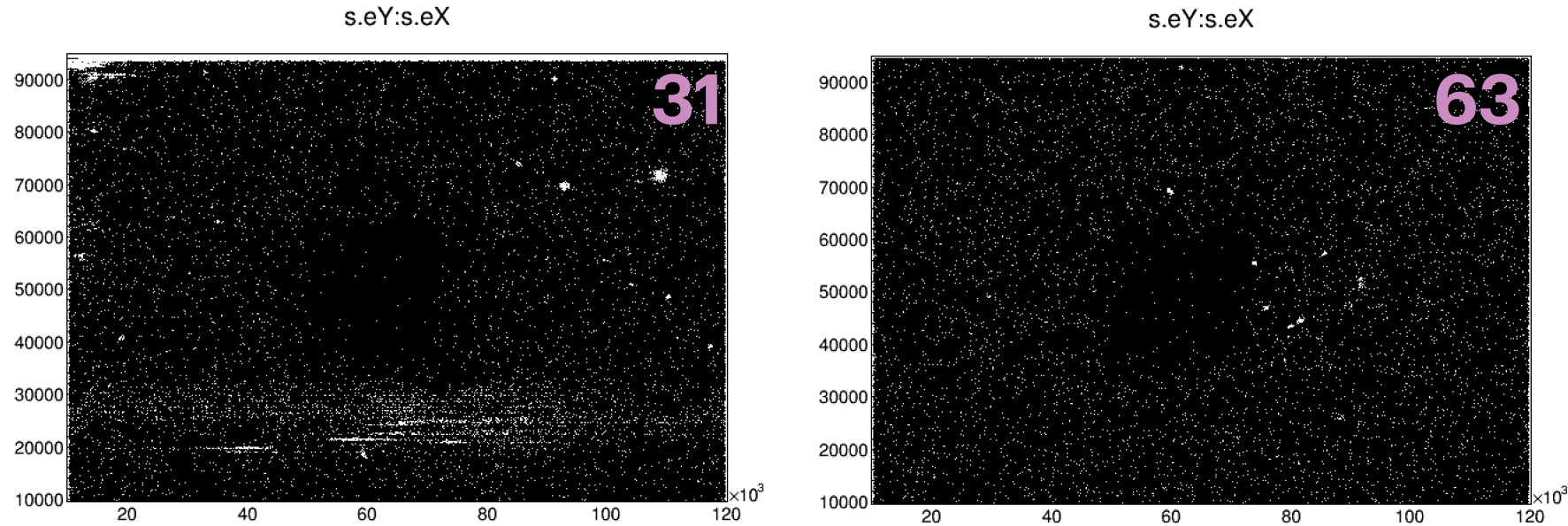
		2019		2020
		Oxygen 200 MeV/n	Oxygen 400 MeV/n	Carbon 700MeV/n
Carbon	TARGET	GS11	GS13	GS15
Polyethylene	BEAM	GS12	GS14	GS16

GSI3 - Emulsions Quality Check S1



- Bad emulsions quality
- S1 were made by Slavich company, S2 and following by Nagoya emulsions
- GSI3 and GSI4 batch different from GSI1' and GSI2' one

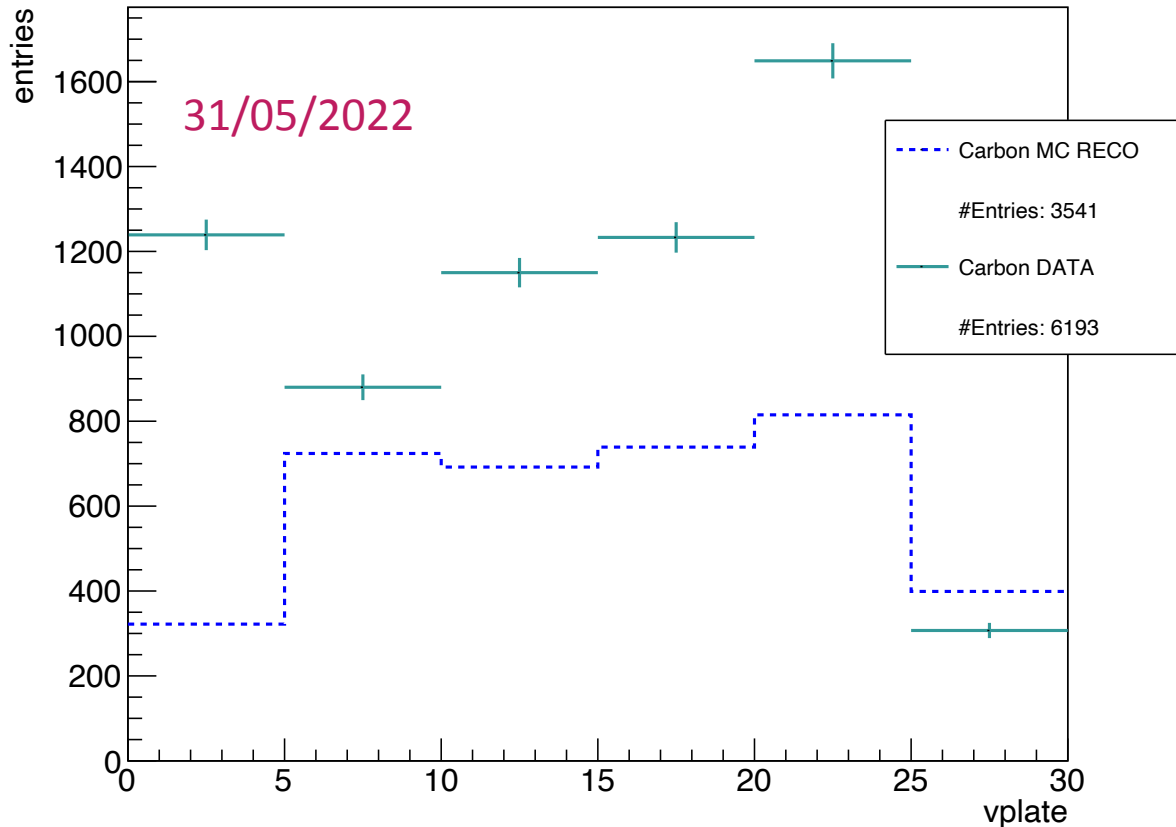
GSI3 - Emulsions Quality Check S2



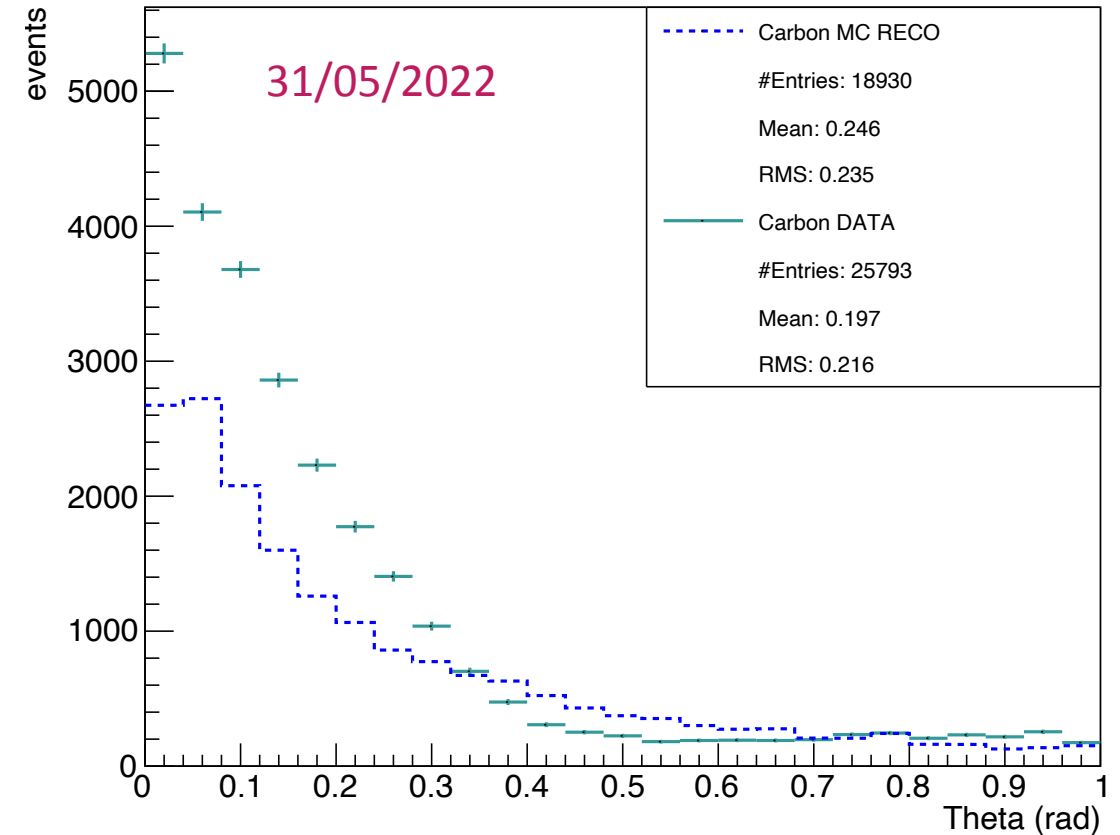
- No problems in S2 (emulsions produced in Nagoya)

GSI1 DATA vs MC RECO Comparison @ XII General Meeting

Vertex Plate DATA VS RECO C



Theta MC TRUE VS DATA CARBON



Distributions normalized to beam particles,
requirement of at least 3 tracks in the vertex.

In GSI3 (1mm C target) there were several discrepancies between data and reconstructed MC due to bad quality nuclear emulsions film

GSI3 - Emulsions Quality Recovery

- Some films have been scanned again
- Three films could not be recovered: number 4, 6, 9
- All procedures (from base-tracks linking to alignment) optimised film by film and run again
- Tracking, vertexing and post-vertexing performed again with new parameters (still space for improvement)

Number of reconstructed vertices

PRELIMINARY

		GSI1 C target
MC	Beam particles	14375
	True vertices	5860
	Reco vertices	3391
DATA	Data vertices	4420

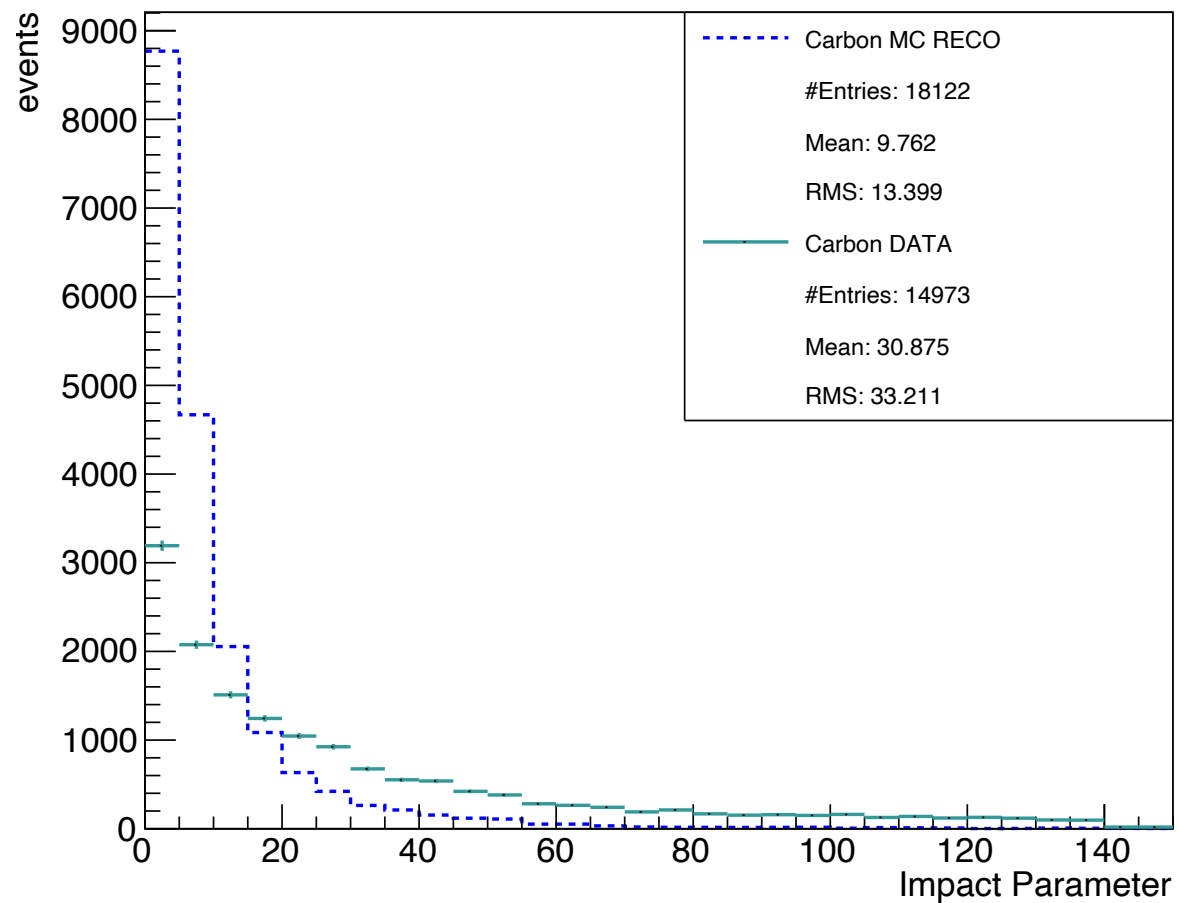
Cuts for vertices selection:

- $n \geq 3$, n = number of tracks (parent + daughters)
- At least 2 daughters with at least 3 segments

Daughters' impact parameters distribution PRELIMINARY

Distributions normalized to beam particles

MC RECO vs DATA

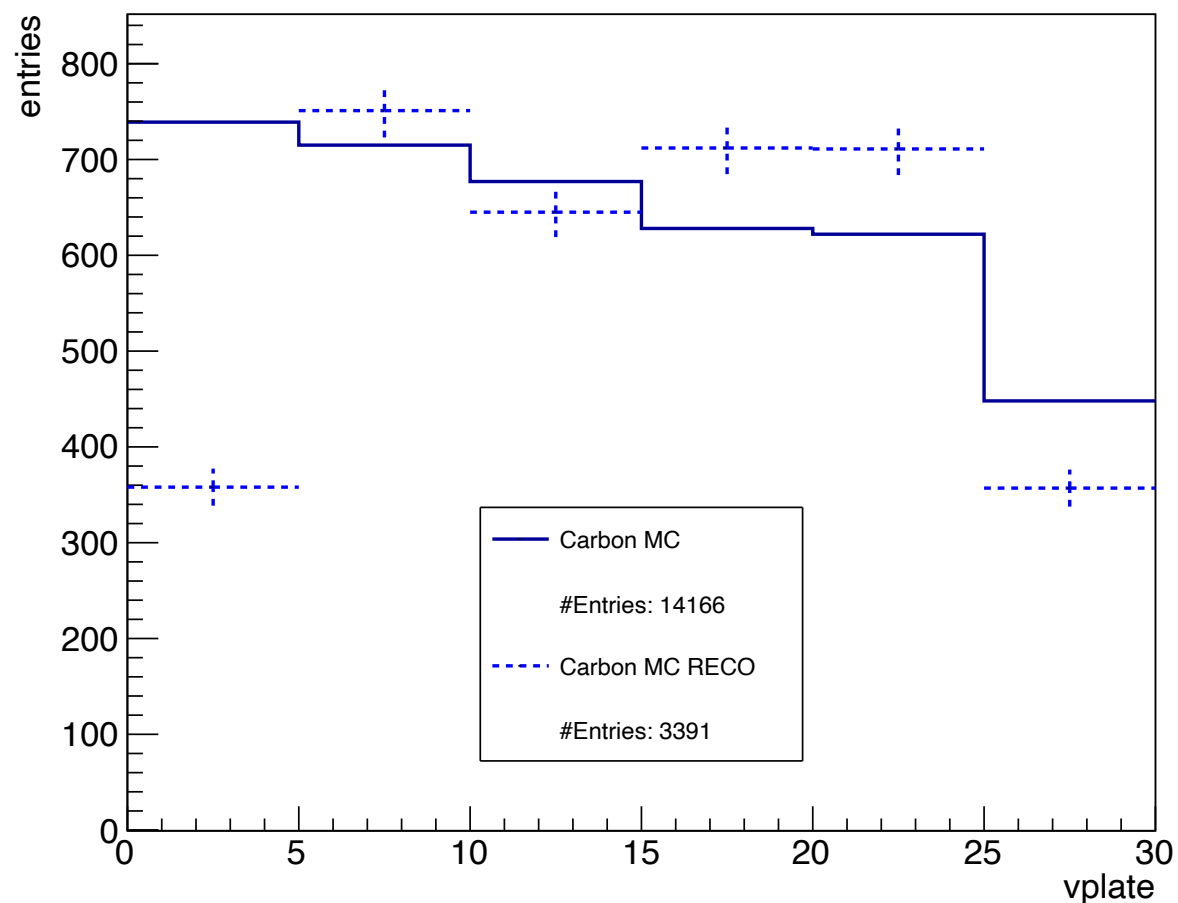


Vertex Plate distribution

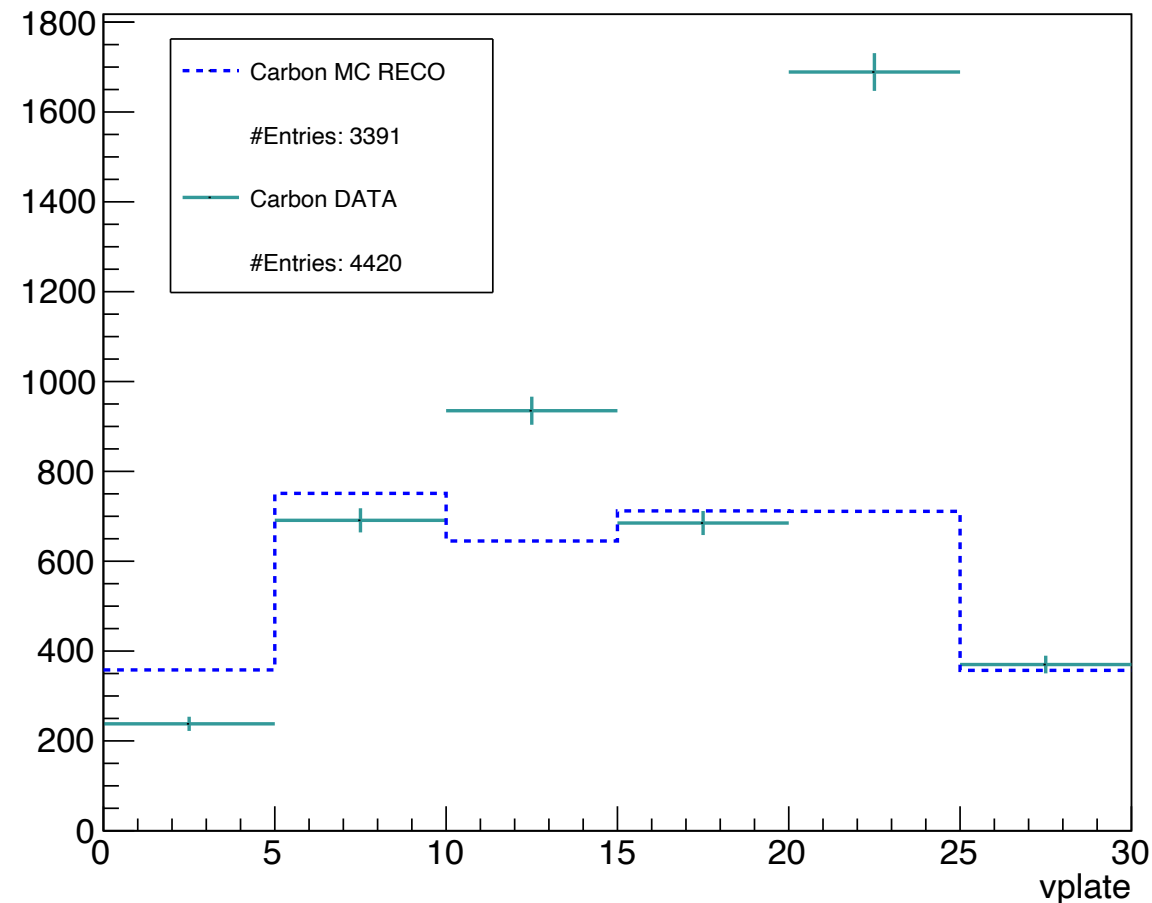
PRELIMINARY

Distributions normalized to beam particles

MC TRUE vs MC RECO



MC RECO vs DATA

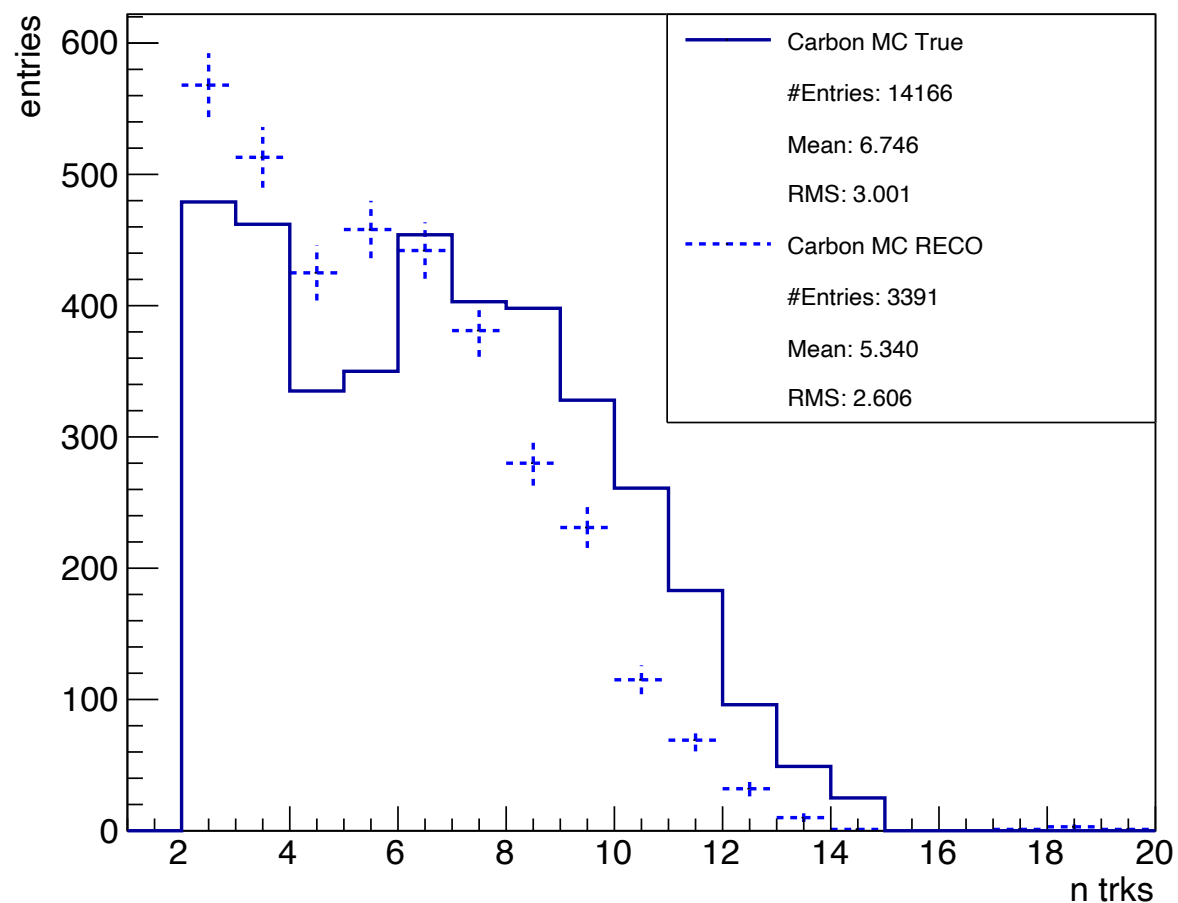


Fragments' multiplicity distribution

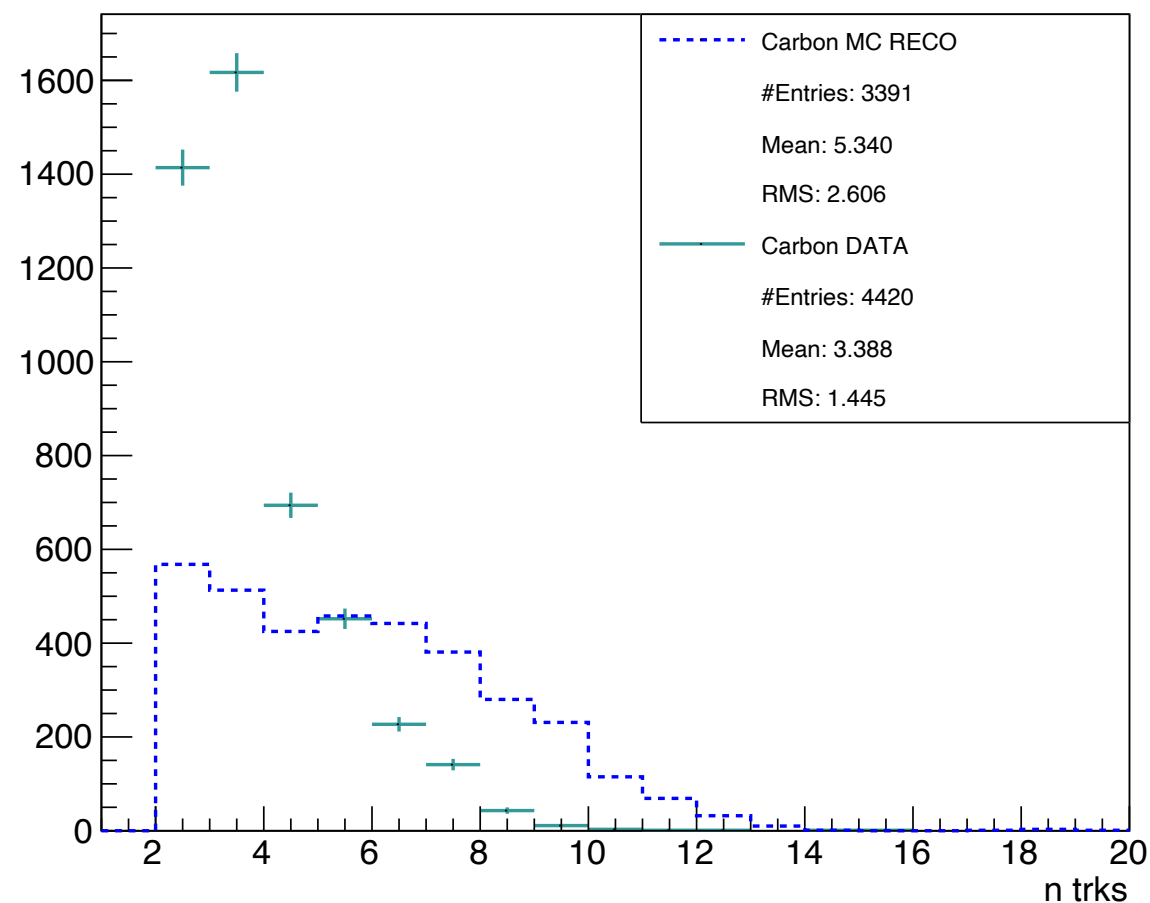
PRELIMINARY

Distributions normalized to beam particles, requirement of at least 3 tracks in the vertex.

MC TRUE vs MC RECO



MC RECO vs DATA

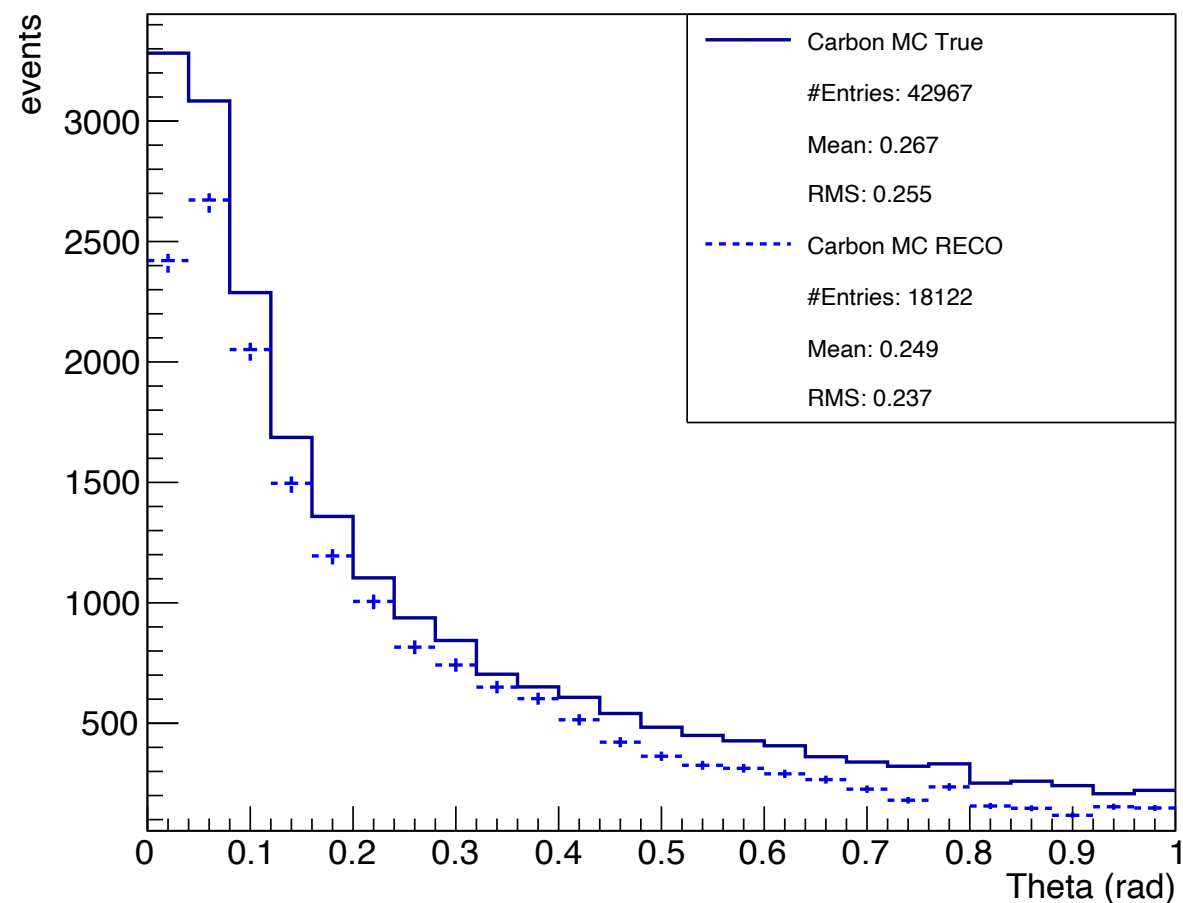


Fragments' angular distribution

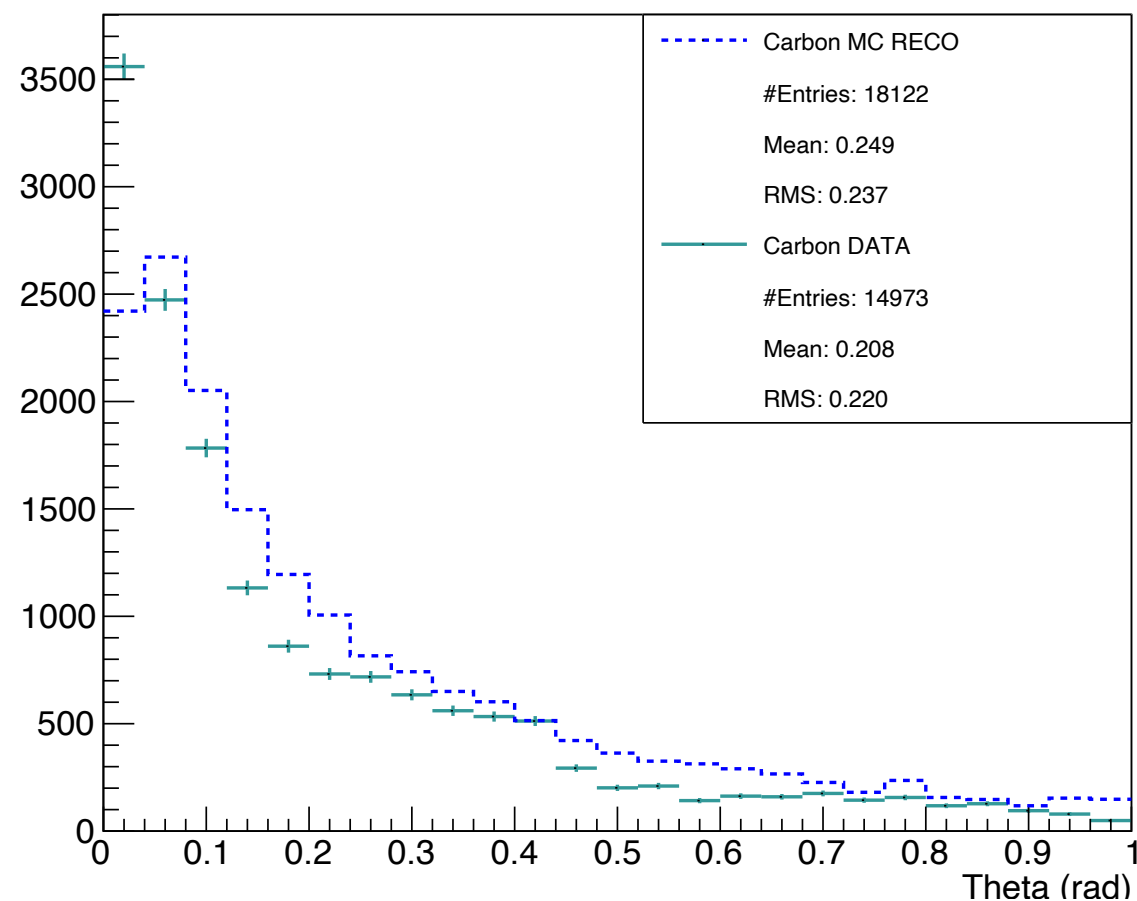
PRELIMINARY

Distributions normalized to beam particles, requirement of at least 3 tracks in the vertex.

MC TRUE vs MC RECO



MC RECO vs DATA



Conclusions

Oxygen @ 400 MeV/n on C

- Bad emulsions quality: efforts made to recover data reconstruction: 3 nuclear emulsions films could not be recovered (films 4, 6, 9)
- Data reconstruction on-going: preliminary results are encouraging



THANK **Y**OU!