\documentclass{article}

\usepackage{amsmath}

\usepackage{amsfonts}

\usepackage{amssymb}

\usepackage{graphicx}

\usepackage[utf8]{inputenc}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%

%%% Required: If any package is needed for the abstract being elaborated, the same can be introduced by the authors, it is not be allowed remove the existing latex commands

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\textheight 18.9cm\textwidth 11.7cm\topmargin 0cm \hoffset=0cm

\setlength\oddsidemargin {2cm}

\setlength\evensidemargin {2cm}

\def\title#1{{\Large\bf \begin{center} #1 \vspace{0pt} \end{center} } }

\def\authors#1{{\large\bf \begin{center} #1 \vspace{0pt} \end{center} } }

\def\university#1{{\sl \begin{center} #1 \vspace{0pt} \end{center} } }

\def\inst#1{\unskip $^{#1}$}

\def\email#1{#1 \hspace{2cm} }

\def\mail#1{\unskip $^{#1}$}

%%%% ATTENTION PLEASE %%%%%%

%%% Required: All data to be introduce are in English

%%%% ATTENTION PLEASE %%%%%%

\begin{document}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%%

%% Required: The author list (the same used down at \authors{}) and talk title

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%

\addcontentsline{toc}{chapter}{\small{Fernando Carapau, Luís M. Grilo and Alberto Simões\\

\noindent{\it{Title of the talk here}}}}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%

%% Required: Talk title

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\begin{center}

\textbf{\Large{Title of the talk here} }

\end{center}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%

%% Required: The author making the presentation (is also the corresponding author) has to have the name first on the list and underline

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%

\authors{\underline{Fernando Carapau}\inst{1,3}, Luís M. Grilo\inst{2} and Alberto Simões\inst{3}}

\smallskip

\university{  
\inst{1}University of Évora, Mathematics Department and CIMA/UE, Portugal\\  
\inst{2}Polytechnic Institute of Tomar, Departmental Unit of Mathematics and Physics and CMA/FCT/UNL, Portugal\\  
\inst{3}University of Beira Interior, Mathematics Department and CMA/UBI, Portugal

}

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%% Required: Take into account the following order

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\index{Carapau, Fernando|textit}

\index{Grilo, Luís M.|textit}

\index{Simões, Alberto|textit}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%%%%

%% Required: Here just the email of the presenting/corresponding author

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%

\begin{center}

\emph{Corresponding/Presenting author: flc@uevora.pt}

\end{center}

\vspace{0.5cm}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%

%% Required: Brief description of the presentation where reference must be made to the works mentioned in the bibliography

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%

\begin{center}

\noindent {\large\bf Talk Abstract}

\end{center}

\vspace{0.25cm}

\noindent Based on a director theory approach related to fluid dynamics (see Caulk and Naghdi \cite{x2}) we reduce the nonlinear three-dimensional equations governing the axisymmetric unsteady motion of a non-Newtonian incompressible third-grade fluid (see \cite{x3}) to a one-dimensional system of ordinary differential equations depending on time and on a single spatial variable. From this new system we obtain the unsteady equation for the mean pressure gradient and the wall shear stress both depending on the volume flow rate, Womersley number and viscoelastic parameters over a finite section of a straight, rigid and impermeable tube with variable circular cross-section. We present some numerical simulations of unsteady flows regimes through a tube with a contraction using a nine-directors theory, form more details see Carapau and Correia \cite{x1}. Just for fun see Leadbetter et al. \cite{x4}.

\bigskip

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%%

%% Required: Maximum 4 keywords (not words of the talk title) separated by commas and always starting in small letters

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% ATTENTION PLEASE %%%%%%%%%%%%%%%%%%%%%%

\noindent {\bf Keywords:} third-grade fluid, one-dimensional model, unsteady flow, hierarchical theory.

\bigskip

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%% Required: Acknowledgements

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\noindent {\bf Acknowledgements}

\medskip

\noindent This work was partially supported by the Fundação para a Ciência e a Tecnologia (Portuguese Foundation for Science and Technology) through the project UID-MAT-00297-2013 (Centro de Matemática e Aplicações).

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%% Required: Maximum 5 references. See example of how to mention books, articles/proceedings. The order of references in the bibliography is the order as they are mentioned in the abstract.

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\begin{thebibliography}{1}

\bibitem{x2}

Caulk, D.A. and Naghdi, P.M., Axisymmetric motion of a viscous fluid inside a slender surface of revolution, \textit{Journal of Applied Mechanics}, 54(1), 1987, pp. 190--196.

\bibitem{x3}

Fosdick, R.L. and Rajagopal, K.R., Thermodynamics and stability of fluids of third grade, \textit{Proc. R. Soc. Lond. A.}, 339, 1980, pp. 351--377.

\bibitem{x1}

Carapau, F. and Correia, P., Numerical simulations of a third-grade fluid flow on a tube through a contraction, \textit{European Journal of Mechanics B/Fluids}, 65, 2017, pp. 45--53.

\bibitem{x4}

Leadbetter, M.R., Lindgren, G. and Rootz\"en, H., \textit{Extremes and related

properties of random sequences and series}, Springer-Verlag, New York, 1983.

\end{thebibliography}

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