



# LIAISONS NORMALISÉES


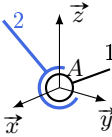
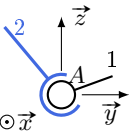

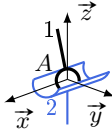
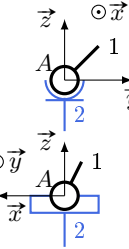
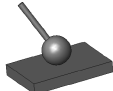
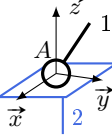
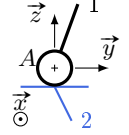

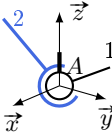
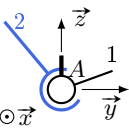
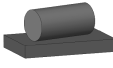
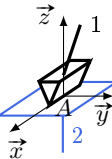
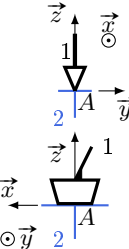
Formulaire

Professeur: Y.FARTOUH

v2.4

CPGE - Lycée IBN TIMIYA - MARRAKECH

Nom + Caractéristique	Schéma spatial (3D)	Schéma(s) plan(s) (2D)	Mobilités	$\{\mathcal{V}_{2/1}\}$	$\{\mathcal{T}_{2 \rightarrow 1}\}$
<b>Encastrement</b>			$\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$	$C \begin{Bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{Bmatrix}_b$	$C \begin{Bmatrix} X_{21} & L_{21} \\ Y_{21} & M_{21} \\ Z_{21} & N_{21} \end{Bmatrix}_b$
<b>Glissière</b> Direction $\vec{x}$			$\begin{bmatrix} 0 & T_x \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$	$M \begin{Bmatrix} 0 & V_{M,2/1}^x \\ 0 & 0 \\ 0 & 0 \end{Bmatrix}_b$ $\forall M$	$M \begin{Bmatrix} 0 & L_{21} \\ Y_{21} & M_{21} \\ Z_{21} & N_{21} \end{Bmatrix}_b$
<b>Pivot</b> Axe $(A, \vec{x})$			$\begin{bmatrix} R_x & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$	$A \begin{Bmatrix} \omega_{2/1}^x & 0 \\ 0 & 0 \\ 0 & 0 \end{Bmatrix}_b$ $\forall M \in (A, \vec{x})$	$A \begin{Bmatrix} X_{21} & 0 \\ Y_{21} & M_{21} \\ Z_{21} & N_{21} \end{Bmatrix}_b$
<b>Hélicoïdale</b> Axe $(A, \vec{x})$			$\begin{bmatrix} R_x & T_x \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$	$C \begin{Bmatrix} \omega_{2/1}^x & \frac{p}{2\pi} \omega_{2/1}^x \\ 0 & 0 \\ 0 & 0 \end{Bmatrix}_b$ $\forall M \in (A, \vec{x})$	$C \begin{Bmatrix} X_{21} & -\frac{p}{2\pi} X_{21} \\ Y_{21} & M_{21} \\ Z_{21} & N_{21} \end{Bmatrix}_b$ Pas à gauche : $-\frac{p}{2\pi} \omega_{2/1}^x$ et $\frac{p}{2\pi} X_{21}$
<b>Pivot glissant</b> Axe $(A, \vec{x})$			$\begin{bmatrix} R_x & T_x \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$	$A \begin{Bmatrix} \omega_{2/1}^x & V_{A,2/1}^x \\ 0 & 0 \\ 0 & 0 \end{Bmatrix}_b$ $\forall M \in (A, \vec{x})$	$A \begin{Bmatrix} 0 & 0 \\ Y_{21} & M_{21} \\ Z_{21} & N_{21} \end{Bmatrix}_b$
<b>Appui plan</b> Normale au plan $\vec{z}$			$\begin{bmatrix} 0 & T_x \\ 0 & T_y \\ R_z & 0 \end{bmatrix}$	$M \begin{Bmatrix} 0 & V_{M,2/1}^x \\ 0 & V_{M,2/1}^y \\ \omega_{2/1}^z & 0 \end{Bmatrix}_b$ $\forall M$	$M \begin{Bmatrix} 0 & L_{21} \\ 0 & M_{21} \\ Z_{21} & 0 \end{Bmatrix}_b$

Nom + Caractéristique	Schéma spatial (3D)	Schéma(s) plan(s) (2D)	Mobilités	$\{\mathcal{V}_{2/1}\}$	$\{\mathcal{T}_{2 \rightarrow 1}\}$
<b>Sphérique</b>  Centre de la sphère $A$			$\begin{bmatrix} R_x & 0 \\ R_y & 0 \\ R_z & 0 \end{bmatrix}$	$\left\{ \begin{matrix} \omega_{2/1}^x & 0 \\ \omega_{2/1}^y & 0 \\ \omega_{2/1}^z & 0 \end{matrix} \right\}_b$ <p style="text-align: center;">En <math>A</math></p>	$\left\{ \begin{matrix} X_{21} & 0 \\ Y_{21} & 0 \\ Z_{21} & 0 \end{matrix} \right\}_b$
<b>Sphère cylindre</b>  Centre de la sphère $A$ Direction $\vec{x}$			$\begin{bmatrix} R_x & T_x \\ R_y & 0 \\ R_z & 0 \end{bmatrix}$	$\left\{ \begin{matrix} \omega_{2/1}^x & V_{A,2/1}^x \\ \omega_{2/1}^y & 0 \\ \omega_{2/1}^z & 0 \end{matrix} \right\}_b$ <p style="text-align: center;">En <math>A</math></p>	$\left\{ \begin{matrix} 0 & 0 \\ Y_{21} & 0 \\ Z_{21} & 0 \end{matrix} \right\}_b$
<b>Sphère plan</b>  Point de contact $A$ Normale au plan $\vec{z}$			$\begin{bmatrix} R_x & T_x \\ R_y & T_y \\ R_z & 0 \end{bmatrix}$	$\left\{ \begin{matrix} \omega_{2/1}^x & V_{A,2/1}^x \\ \omega_{2/1}^y & V_{A,2/1}^y \\ \omega_{2/1}^z & 0 \end{matrix} \right\}_b$ <p style="text-align: center;"><math>\forall M \in (A, \vec{z})</math></p>	$\left\{ \begin{matrix} 0 & 0 \\ 0 & 0 \\ Z_{21} & 0 \end{matrix} \right\}_b$
<b>Sphérique à doigt</b>  Centre de la sphère $A$ Normale au plan $\vec{x}$ Direction du doigt $\vec{z}$			$\begin{bmatrix} R_x & 0 \\ 0 & 0 \\ R_z & 0 \end{bmatrix}$	$\left\{ \begin{matrix} \omega_{2/1}^x & 0 \\ 0 & 0 \\ \omega_{2/1}^z & 0 \end{matrix} \right\}_b$ <p style="text-align: center;">En <math>A</math></p>	$\left\{ \begin{matrix} X_{21} & 0 \\ Y_{21} & M_{21} \\ Z_{21} & 0 \end{matrix} \right\}_b$
<b>Linéaire rectiligne (ou cylindre plan)</b>  Droite de contact $(A, \vec{x})$ Normale au plan $\vec{z}$			$\begin{bmatrix} R_x & T_x \\ 0 & T_y \\ R_z & 0 \end{bmatrix}$	$\left\{ \begin{matrix} \omega_{2/1}^x & V_{A,2/1}^x \\ 0 & V_{A,2/1}^y \\ \omega_{2/1}^z & 0 \end{matrix} \right\}_b$ <p style="text-align: center;"><math>\forall M \in</math> plan <math>(A, \vec{x}, \vec{z})</math></p>	$\left\{ \begin{matrix} 0 & 0 \\ 0 & M_{21} \\ Z_{21} & 0 \end{matrix} \right\}_b$