-60-35 tikzpicture [tdplot$_m$ain$_c$oords, >= $Stealth, mydashed/.style = dashed, thick, ->, shorten >= -15pt, shorten <$ $thin, gray!70, myblue/.style = blue, linecap = round, -Triangle[width = 3 * 1], linewidth = 1, shorten >= 1 * 1.75pt, every$ $midway, font =, myvectors/.style = green!50!black, Stealth[scale = .75] - Stealth[scale = .75], myred/.style =$ $thick, red, linecap = round, mygrey/.style = gray!70, description/.style = draw = gray!70, thick, linecap = round, everyno$ $-(0,7,0)(-2,7,0)--(2,7,0); (o)at(0,0,0); [draw = gray!70, text = gray, fill = gray!20, opacity = 0.8, textopacity =$ $1](-1.5,4,1.75)coordinate(a)--++(0,0,-3.5)coordinate(b)--++(3,0,0)coordinate(c)--++(0,0,3.5)coordinate(d)-$ $-cyclenode[pos = .95, above, sloped, anchor = southwest]z=f; [mygrey](-2,0,0)--(2,0,0)(0,0,0)--(0,4,0)(0,0,0)-$ $-(0,0,2); [thick, ->, everynode/.style = font =, innersep = 0pt](o)node[anchor = northwest]F_c$ (o) edge node [pos=1, anchor=north east] z_c ++(0,1,0) edge node [pos=1, anchor=north] y_c ++(0,0,1) – ++(1,0,0) node [anchor=north west] x_c; [my box] (o) ++(0,4,-.5) coordinate (p1) – ++(1,0,0) coordinate (p2) – ++(0,0,-1.25) coordinate (p3); ıin 0,1,...,4 [my box] (p1) ++(ı*.25,0,0) – ++(0,0,-.25); ıin 0,1,...,5 [my box] (p2) ++(0,0,-ı*.25) – ++(-.25,0,0); [my box] (p1) ++(0,0,-.25) – ++(.75,0,0) – ++(0,0,-1); [my dashed, cyan] ((b)!1/2!(c)) – ((d)!1/2!(a)) node [below=15pt, anchor=north] y; [my dashed, cyan] ((b)!1/2!(a)) – ((d)!1/2!(c)) node [above right=17pt, anchor=north west] x; [my dashed, green!50!black, ¡-¿] (a) node [below=15pt, anchor=north] v – (b) – (c) node [above right=17pt, anchor=north west] u; [green!50!black, every node/.style=font=, inner sep=0pt] (p2) node [above right, anchor=south west] (u, v); (p2) ++(-.125,0,0) coordinate (q2) ++(0,0,-.125) coordinate (r2); [my blue=1] ((0, 4, 0) + ((q2)-(p1))) coordinate (s2) – (r2) node (d1) ; [on background layer][my blue=1.75] ((1.75*((s2) − (0, 4, 0))) + (0, 7, 0)) – ++(1.75 * ((r2)-(s2))) node (d2) [label=[label distance=-20pt]above:$P = (X, Y, Z)$] ; [my vectors] (0,4,.1) – ((s2) + (0, 0, .1)) node [below, my label, sloped] $\vec{u}$; [my vectors] (-.1,4,0) – ((q2) − (s2) + (−.1, 4, 0)) node [left, my label] $\vec{v}$; [my red] (o) – (d1.center); [on background layer][my red] (d1.center) – (d2.center); [description] (0,4,0) [out=-95, in=95] to (-.75,4,.25) node principal

(0,6.5,0) [out=-95, in=95] to (-.75,6.5,.25) node optical

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