

# Calcium references

## I. LEVELS

State	$E$ (THz)	$\Gamma/2\pi$	$A_{HF}$ (MHz)	$B_{HF}$ (MHz)	Decay	$\lambda$ (nm)	$A_{ki}$ ( $s^{-1}$ )
$4s^2\ ^1S_0$	0	0	0	0			
$4s4p\ ^3P_0$	454.42244		0	0	$4s^2\ ^1S_0$	659.72195	
$4s4p\ ^3P_1$	455.98621	0.33 kHz[1]	$-198.5(11)[2]$	$2(9)[2]$	$4s^2\ ^1S_0$	657.45947	$2.1 \times 10^3[1]$ $2.32 \times 10^3[3]$
$4s4p\ ^3P_2$	459.16042				$4s^2\ ^1S_0$	652.91442	$1.2 \times 10^{-4}[3]$
$3d4s\ ^3D_1$	609.63876				$4s^2\ ^1S_0$	491.41836	
					$4s4p\ ^3P_0$	1931.449	$0.502 \times 10^6[4]$
					$4s4p\ ^3P_1$	1951.106	$0.365 \times 10^6[4]$
					$4s4p\ ^3P_2$	1992.263	$0.023 \times 10^6[4]$
$3d4s\ ^3D_2$	610.05547				$4s^2\ ^1S_0$	491.41836	
					$4s4p\ ^3P_1$	1945.829	$0.663 \times 10^6[4]$
					$4s4p\ ^3P_2$	1986.761	$0.207 \times 10^6[4]$
$3d4s\ ^3D_3$	610.70722				$4s^2\ ^1S_0$	491.75426	
					$4s4p\ ^3P_2$	1978.217	$0.841 \times 10^6[4]$
$3d4s\ ^1D_2$	655.03555				$4s^2\ ^1S_0$	457.67357	40[3]
					$4s4p\ ^3P_1$	1506.121	300[3]
					$4s4p\ ^3P_2$	1530.528	96[3]
$4s4p\ ^1P_1$	709.2779[1]	34.7 MHz[1]	$-15.54(3)[5]$	$-3.48(13)[5]$	$4s^2\ ^1S_0$	422.6728[1]	$218 \times 10^6[1]$
					$3d4s\ ^1D_2$	5547.327	$2.18 \times 10^3[3]$
$4s5s\ ^3S_1$	945.53027				$4s4p\ ^3P_0$	610.44121	$9.855 \times 10^6[4]$
					$4s4p\ ^3P_1$	612.39117	$29.278 \times 10^6[4]$
					$4s4p\ ^3P_2$	616.38783	$47.845 \times 10^6[4]$
$4s5s\ ^1S_0$	998.82644		0	0	$4s4p\ ^1P_1$	1034.665	
$3d4p\ ^3F_2$	1071.1721						
$3d4p\ ^3F_3$	1073.8180						
$3d4p\ ^1D_2$	1074.3187						
$3d4p\ ^3F_4$	1076.1617						
$4s5p\ ^3P_0$	1095.6721		0	0			
$4s5p\ ^3P_1$	1095.8838						
$4s5p\ ^3P_2$	1096.4945						
$4s5p\ ^1P_1$	1101.1861				$4s^2\ ^1S_0$	272.24504	$0.27 \times 10^6[4]$ $60 \times 10^6[3]$
					$3d4s\ ^1D_2$	671.95355	$12 \times 10^6[3]$
					$4s5s\ ^1S_0$	2928.814	
$4s4d\ ^1D_2$	1118.1745		$-8.33(2)[5]$	$-1.0(12)[5]$	$4s4p\ ^3P_1$	452.72993	$30 \times 10^3[3]$
					$4s4p\ ^1P_1$	732.81639	$14 \times 10^6[3]$
$4s4d\ ^3D_1$	1131.6625				$4s4p\ ^3P_0$	442.66795	$48.981 \times 10^6[4]$
					$4s4p\ ^3P_1$	443.69245	$36.471 \times 10^6[4]$
					$4s4p\ ^3P_2$	445.78668	$2.396 \times 10^6[4]$

$4s4d\ ^3D_2$	1131.7725				$4s4p\ ^3P_1$	443.62022	$65.687 \times 10^6$ [4]
					$4s4p\ ^3P_2$	445.71376	$21.580 \times 10^6$ [4]
$4s4d\ ^3D_3$	1131.9398				$4s4p\ ^3P_2$	445.60289	$86.400 \times 10^6$ [4]
$3d4p\ ^3D_1$	1144.9791						
$3d4p\ ^3D_2$	1145.7803						
$3d4p\ ^3D_3$	1146.9797						
$4p^2\ ^3P_0$	1151.7290		0	0	$4s4p\ ^3P_1$	430.89556	$179.046 \times 10^6$ [4]
$4p^2\ ^3P_1$	1153.1459				$4s4p\ ^3P_0$	429.05736	$60.474 \times 10^6$ [4]
					$4s4p\ ^3P_1$	430.01977	$45.045 \times 10^6$ [4]
					$4s4p\ ^3P_2$	431.98662	$74.033 \times 10^6$ [4]
$4p^2\ ^3P_2$	1155.7466				$4s4p\ ^3P_1$	428.42157	$45.563 \times 10^6$ [4]
					$4s4p\ ^3P_2$	430.37380	$134.784 \times 10^6$ [4]

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