%*6,&(*'6(HI%*/4(@7,)(-&'$%*)$)(:,$7(,$8)(Z#,"$(1&6"9(: 7"%"($7"(HI%*/(" 1 ,)),&'(7*)(6,)*BB"*%"6(*'6(%*6,&(%" 1 *,')(1 &)$./(&++(:,$7( )7&%$(2#%)$)F+.,-E"%)(&+(" 1 ,)),&'($7*$(.*)$(*2&#$(>I[(%&$*$,&'(B"%,&6)4(@7"(B#.)*%()B"'6)(*$("*)$(>L(7&#%)(,'("*-7(1&6"9(2#$('&(;%"*$"%($7*'(M(6*/)(<., 1 ,$*$,&')()"$(2/(E'&: '(&2)"%D*$,&')A4(V(%*%"(+"*$#%"(,)($7"(*BB"*%*'-"(&+(*(Z#*),I)$*2."(2%,;7$(1&6"4(@7,)(7*)(&'./(2""'(6"$"-$"6(&'-"(B%"D,&#)./9(,'$"%%#B$,';($7"(Z#,"$(1&6"(+&%(*2&#$(O(1 ,'#$")4(W#%(%"I6"$"-$,&'(-&'+,% 1)($7,)(*)(*(+"*$#%"(&+($7"(Z#,"$(1&6"9(*'6('&$(*'(,)&.*$"6("D"'$4(Q'(2&$7(1&6")(:"(+&#'6("D,6"'-"(+&%(Z#*),IB"%,&6,-,$,")(,'($7"(" 1 ,)),&'4(@7"(2%,;7$(1&6"(1&6#.*$")(&'(*($, 1 ")-*."(&+([(%&$*$,&'(B"%,&6)9(: 7,."($7"(Z#,"$(1&6"8)(+.,-E"%)(&--#%(*2&#$("D"%/(L?(%&$*$,&'(B"%,&6)4(@7")"(B"%,&6,-,$,")()#;;")$($7*$($7"(B.*) 1*(B%&6#-,';(%*6,*$,&'(,)(#'6"%;&,';(*((Z#*),IB"%,&6,-(B%&-"))(,'(2&$7(1&6")4(
(((((Q'($7,)(B#.)*%9(: "(*.)&(,6"'$,+,"6(*(1*3&%,$/(&+($7"(%*6,&(" 1 ,)),&'(*%,),';(+%& 1('"*%($7"()#%+*-"9(: 7,."(*() 1*..(B&%$,&'(-& 1 ")(+%& 1()#2)$*'$,*../(7,;7"%(7",;7$)4(G"(+&#'6($7"(2%,;7$(1&6"($&(2"(6& 1,'*$"6(2/(.&:(*.$,$#6"(" 1 ,)),&'(:7"%"*)($7"(Z#,"$(1&6"(,)()$%,-$./(7,;7(*.$,$#6"(" 1 ,)),&'(<,'6,-*$,';(.&:(*.$,$#6"(" 1 ,)),&'(6,)*BB"*%)(,'($7"(Z#,"$(1&6"A4(HI%*/(" 1 ,)),&'(*.)&(*%,)")('"*%($7"()#%+*-"4(@7"(6,)*BB"*%*'-"(&+(.&:(*.$,$#6"(" 1 ,)),&'(,'($7"(Z#,"$(1&6"()#;;")$)(*(.*%;"()-*."(%"-&'+,;#%*$,&'(&+($7"(B.*) 1*(,'($7"(B#.)*%8)('"*%("'D,%&' 1"'$4(V)(:"..9($7"(B7/),-*.(1"-7*',) 1(2/(:7,-7(B.*) 1*(,)(B%&6#-"6(*BB"*%)($&(6,++"%(,'($7"(.&:(*'6(7,;7(*.$,$#6"(%";, 1")4(P'6"%)$*'6,';($7"(-&''"-$,&')(2"$:""'($7,)(B#.)*%9(*'6($7"(1*'/(1&%"(E'&: '(&'")(:,..(7".B(#)(,'(2"$$"%(#'6"%)$*'6,';(7&:(B#.)*%)(:&%E4(
(
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Figure 1: Pulsar's rotate in many different ways. While all pulsars ideally slow down with age, some pulsars are born with naturally slow rotations or get sped up faster by accretion. Plotting a pulsar's change of period vs period gives us a way to naturally distinguish populations. B0823+26 lies in what we call the "normal" pulsar population. Three mode changing pulsars have been plotted and are indicated by the star, square, and circle respectively. The cyon blue line represents a death line (where plasma generation can no longer be self-sustained) for a postulated theoretical emission mechanism.