

# On non-trivial zero point

Toshiro Takami

mmm82889@yahoo.co.jp

## Abstract

In the Riemann zeta function, when the value of the nontrivial zero is zero, the value of the real part of the function is negative from 0 to 0.5, but the value of the real part of the function is 0.5 to 1 I found it to be positive. We also found that the positive and negative of the imaginary part also interchanged with the real part 0.5. This tendency is seen as a tendency near the non-trivial zero value, but becomes less and less as it deviates from the non-trivial zero value. We present and discuss the case of four non-trivial zero values. This seems to be an important finding and will be announced here.

## 1 Introduction

$\zeta(0.0+i14.1347)=-0.479166... - 0.0989516... i$   
 $\zeta(0.1+i14.1347)=-0.367857... - 0.0721771... i$   
 $\zeta(0.2+i14.1347)=-0.264866... - 0.0493623... i$   
 $\zeta(0.3+i14.1347)=-0.169593... - 0.0300140... i$   
 $\zeta(0.4+i14.1347)=-0.0814778... - 0.0136953... i$   
 $\zeta(0.5+i14.1347)=$  almost zero  
 $\zeta(0.6+i14.1347)=0.0753372... + 0.0113547... i$   
 $\zeta(0.7+i14.1347)=0.144979... + 0.0207296... i$   
 $\zeta(0.8+i14.1347)=0.209351... + 0.0283713... i$   
 $\zeta(0.9+i14.1347)=0.268846... + 0.0345143... i$   
 $\zeta(1.0+i14.1347)=0.323829... + 0.0393653... i$

$\zeta(0.0+i21.022)=-0.758769... + 0.188304... i$   
 $\zeta(0.1+i21.022)=-0.568554... + 0.138734... i$   
 $\zeta(0.2+i21.022)=-0.399959... + 0.0957785... i$   
 $\zeta(0.3+i21.022)=-0.250448... + 0.0587442... i$   
 $\zeta(0.4+i21.022)=-0.117787... + 0.0269968... i$   
 $\zeta(0.5+i21.022)=$  almost zero  
 $\zeta(0.6+i21.022)=0.104617... - 0.0229066... i$

$\zeta(0.7+i21.022)=0.197620\dots - 0.0420713\dots i$   
 $\zeta(0.8+i21.022)=0.280344\dots - 0.0579726\dots i$   
 $\zeta(0.9+i21.022)=0.353976\dots - 0.0710031\dots i$   
 $\zeta(1.0+i21.022)=0.419560\dots - 0.0815165\dots i$

$\zeta(0.0+i25.0109)=-0.910044\dots - 0.386035\dots i$   
 $\zeta(0.1+i25.0109)=-0.678406\dots - 0.276835\dots i$   
 $\zeta(0.2+i25.0109)=-0.474749\dots - 0.186231\dots i$   
 $\zeta(0.3+i25.0109)=-0.295714\dots - 0.111421\dots i$   
 $\zeta(0.4+i25.0109)=-0.138340\dots - 0.0500092\dots i$   
 $\zeta(0.5+i25.0109)=$  almost zero  
 $\zeta(0.6+i25.0109)=0.121545\dots + 0.0405226\dots i$   
 $\zeta(0.7+i25.0109)=0.228375\dots + 0.0728901\dots i$   
 $\zeta(0.8+i25.0109)=0.322251\dots + 0.0984346\dots i$   
 $\zeta(0.9+i25.0109)=0.404738\dots + 0.118246\dots i$   
 $\zeta(1.0+i25.0109)=0.477215\dots + 0.133254\dots i$

$\zeta(0.0+i30.4249)=-0.798591\dots + 0.602995\dots i$   
 $\zeta(0.1+i30.4249)=-0.592313\dots + 0.428177\dots i$   
 $\zeta(0.2+i30.4249)=-0.412850\dots + 0.285178\dots i$   
 $\zeta(0.3+i30.4249)=-0.256386\dots + 0.168920\dots i$   
 $\zeta(0.4+i30.4249)=-0.119683\dots + 0.0750891\dots i$   
 $\zeta(0.5+i30.4249)=$  almost zero  
 $\zeta(0.6+i30.4249)=0.105056\dots - 0.0593696\dots i$   
 $\zeta(0.7+i30.4249)=0.197436\dots - 0.105726\dots i$   
 $\zeta(0.8+i30.4249)=0.278863\dots - 0.141265\dots i$   
 $\zeta(0.9+i30.4249)=0.350793\dots - 0.167860\dots i$   
 $\zeta(1.0+i30.4249)=0.414475\dots - 0.187094\dots i$

$\zeta(0.0+i32.9351)=-0.824282\dots - 0.704411\dots i$   
 $\zeta(0.1+i32.9351)=-0.612478\dots - 0.496080\dots i$   
 $\zeta(0.2+i32.9351)=-0.427445\dots - 0.327764\dots i$   
 $\zeta(0.3+i32.9351)=-0.265662\dots - 0.192628\dots i$   
 $\zeta(0.4+i32.9351)=-0.124073\dots - 0.0849529\dots i$   
 $\zeta(0.5+i32.9351)=$  almost zero  
 $\zeta(0.6+i32.9351)=0.108767\dots + 0.0663606\dots i$   
 $\zeta(0.7+i32.9351)=0.204307\dots + 0.117331\dots i$   
 $\zeta(0.8+i32.9351)=0.288316\dots + 0.155737\dots i$   
 $\zeta(0.9+i32.9351)=0.362289\dots + 0.183895\dots i$   
 $\zeta(1.0+i32.9351)=0.427522\dots + 0.203733\dots i$

$\zeta(0.0+i37.5862)=-1.47190\dots + 0.522912\dots i$   
 $\zeta(0.1+i37.5862)=-1.06819\dots + 0.368755\dots i$   
 $\zeta(0.2+i37.5862)=-0.728544\dots + 0.243992\dots i$   
 $\zeta(0.3+i37.5862)=-0.442766\dots + 0.143631\dots i$   
 $\zeta(0.4+i37.5862)=-0.202307\dots + 0.0634816\dots i$   
 $\zeta(0.5+i37.5862)=$  almost zero

$\zeta(0.6+i37.5862)=0.170218... - 0.0496243... i$   
 $\zeta(0.7+i37.5862)=0.313376... - 0.0879614... i$   
 $\zeta(0.8+i37.5862)=0.433743... - 0.117013... i$   
 $\zeta(0.9+i37.5862)=0.534901... - 0.138482... i$   
 $\zeta(1.0+i37.5862)=0.619862... - 0.153783... i$   
 $\zeta(0.0+i40.9187)=-1.20505... + 0.318676... i$   
 $\zeta(0.1+i40.9187)=-0.865813... + 0.219703... i$   
 $\zeta(0.2+i40.9187)=-0.585269... + 0.141987... i$   
 $\zeta(0.3+i40.9187)=-0.352934... + 0.0815545... i$   
 $\zeta(0.4+i40.9187)=-0.160201... + 0.0351193... i$   
 $\zeta(0.5+i40.9187)=$  almost zero  
 $\zeta(0.6+i40.9187)=0.133452... - 0.0261161... i$   
 $\zeta(0.7+i40.9187)=0.244929... - 0.0449756... i$   
 $\zeta(0.8+i40.9187)=0.338331... - 0.0581042... i$   
 $\zeta(0.9+i40.9187)=0.416856... - 0.0667242... i$   
 $\zeta(1.0+i40.9187)=0.483130... - 0.0718298... i$

$\zeta(0.0+i43.3271)=-1.08852... - 1.10438... i$   
 $\zeta(0.1+i43.3271)=-0.801141... - 0.767192... i$   
 $\zeta(0.2+i43.3271)=-0.553912... - 0.500228... i$   
 $\zeta(0.3+i43.3271)=-0.341124... - 0.290258... i$   
 $\zeta(0.4+i43.3271)=-0.157892... - 0.126453... i$   
 $\zeta(0.5+i43.3271)=$  almost zero  
 $\zeta(0.6+i43.3271)=0.136045... + 0.0964527... i$   
 $\zeta(0.7+i43.3271)=0.253401... + 0.168693... i$   
 $\zeta(0.8+i43.3271)=0.354666... + 0.221574... i$   
 $\zeta(0.9+i43.3271)=0.442092... + 0.259018... i$   
 $\zeta(1.0+i43.3271)=0.517610... + 0.284215... i$

$\zeta(0.0+i48.0052)=-0.669182... + 1.21491... i$   
 $\zeta(0.1+i48.0052)=-0.507917... + 0.838705... i$   
 $\zeta(0.2+i48.0052)=-0.361562... + 0.543569... i$   
 $\zeta(0.3+i48.0052)=-0.228874... + 0.313598... i$   
 $\zeta(0.4+i48.0052)=-0.108693... + 0.135903... i$   
 $\zeta(0.5+i48.0052)=$  almost zero  
 $\zeta(0.6+i48.0052)=0.0983814... - 0.102400... i$   
 $\zeta(0.7+i48.0052)=0.187206... - 0.178272... i$   
 $\zeta(0.8+i48.0052)=0.267390... - 0.233070... i$   
 $\zeta(0.9+i48.0052)=0.339725... - 0.271237... i$   
 $\zeta(1.0+i48.0052)=0.404942... - 0.296346... i$

$\zeta(0.0+i49.7738)=-1.02525... - 0.754450... i$   
 $\zeta(0.1+i49.7738)=-0.737840... - 0.509449... i$   
 $\zeta(0.2+i49.7738)=-0.499948... - 0.322739... i$   
 $\zeta(0.3+i49.7738)=-0.302406... - 0.181875... i$   
 $\zeta(0.4+i49.7738)=-0.137767... - 0.0769389... i$   
 $\zeta(0.5+i49.7738)=$  almost zero

$\zeta(0.6+i49.7738)=0.115868... + 0.0550838... i$   
 $\zeta(0.7+i49.7738)=0.213762... + 0.0933995... i$   
 $\zeta(0.8+i49.7738)=0.296939... + 0.118830... i$   
 $\zeta(0.9+i49.7738)=0.368023... + 0.134469... i$   
 $\zeta(1.0+i49.7738)=0.429146... + 0.142746... i$

$\zeta(0.0+i52.9703)=-2.05299... - 0.658562... i$   
 $\zeta(0.1+i52.9703)=-1.45894... - 0.451769... i$   
 $\zeta(0.2+i52.9703)=-0.975066... - 0.291186... i$   
 $\zeta(0.3+i52.9703)=-0.581125... - 0.167209... i$   
 $\zeta(0.4+i52.9703)=-0.260593... - 0.0721938... i$   
 $\zeta(0.5+i52.9703)=$  almost zero  
 $\zeta(0.6+i52.9703)=0.211697... + 0.0540653... i$   
 $\zeta(0.7+i52.9703)=0.383441... + 0.0940056... i$   
 $\zeta(0.8+i52.9703)=0.522579... + 0.122832... i$   
 $\zeta(0.9+i52.9703)=0.635104... + 0.142974... i$   
 $\zeta(1.0+i52.9703)=0.725907... + 0.156360... i$

$\zeta(0.0+i56.4462)=-1.95825... + 0.879911... i$   
 $\zeta(0.1+i56.4462)=-1.38812... + 0.603511... i$   
 $\zeta(0.2+i56.4462)=-0.925780... + 0.388819... i$   
 $\zeta(0.3+i56.4462)=-0.550806... + 0.223096... i$   
 $\zeta(0.4+i56.4462)=-0.246681... + 0.0961633... i$   
 $\zeta(0.5+i56.4462)=$  almost zero  
 $\zeta(0.6+i56.4462)=0.199940... - 0.0721920... i$   
 $\zeta(0.7+i56.4462)=0.362028... - 0.125260... i$   
 $\zeta(0.8+i56.4462)=0.493332... - 0.163419... i$   
 $\zeta(0.9+i56.4462)=0.599622... - 0.189938... i$   
 $\zeta(1.0+i56.4462)=0.685579... - 0.207412... i$

$\zeta(0.0+i59.347)=-1.09043... + 0.765162... i$   
 $\zeta(0.1+i59.347)=-0.772384... + 0.506224... i$   
 $\zeta(0.2+i59.347)=-0.516032... + 0.313925... i$   
 $\zeta(0.3+i59.347)=-0.308319... + 0.172993... i$   
 $\zeta(0.4+i59.347)=-0.138998... + 0.0714540... i$   
 $\zeta(0.5+i59.347)=$  almost zero  
 $\zeta(0.6+i59.347)=0.114907... - 0.0488387... i$   
 $\zeta(0.7+i59.347)=0.210750... - 0.0805723... i$   
 $\zeta(0.8+i59.347)=0.291384... - 0.0996520... i$   
 $\zeta(0.9+i59.347)=0.359856... - 0.109467... i$   
 $\zeta(1.0+i59.347)=0.418555... - 0.112618... i$

$\zeta(0.0+i60.8318)=-0.390164... - 1.53661... i$   
 $\zeta(0.1+i60.8318)=-0.329826... - 1.04894... i$   
 $\zeta(0.2+i60.8318)=-0.255157... - 0.672486... i$   
 $\zeta(0.3+i60.8318)=-0.172476... - 0.383917... i$   
 $\zeta(0.4+i60.8318)=-0.0863522... - 0.164672... i$

$\zeta(0.5+i60.8318)$ = almost zero  
 $\zeta(0.6+i60.8318)$ =0.0842443... + 0.121898... i  
 $\zeta(0.7+i60.8318)$ =0.164975... + 0.210292... i  
 $\zeta(0.8+i60.8318)$ =0.241219... + 0.272601... i  
 $\zeta(0.9+i60.8318)$ =0.312443... + 0.314688... i  
 $\zeta(1.0+i60.8318)$ =0.378407... + 0.341191... i

$\zeta(0.0+i65.1125)$ =-1.27313... + 1.77458... i  
 $\zeta(0.1+i65.1125)$ =-0.929355... + 1.20332... i  
 $\zeta(0.2+i65.1125)$ =-0.637674... + 0.766403... i  
 $\zeta(0.3+i65.1125)$ =-0.389926... + 0.434704... i  
 $\zeta(0.4+i65.1125)$ =-0.179292... + 0.185253... i  
 $\zeta(0.5+i65.1125)$ = almost zero  
 $\zeta(0.6+i65.1125)$ =0.152527... - 0.135550... i  
 $\zeta(0.7+i65.1125)$ =0.282521... - 0.232418... i  
 $\zeta(0.8+i65.1125)$ =0.393305... - 0.299515... i  
 $\zeta(0.9+i65.1125)$ =0.487740... - 0.343780... i  
 $\zeta(1.0+i65.1125)$ =0.568250... - 0.370653... i

$\zeta(0.0+i67.0798)$ =-1.72455... - 0.191859... i  
 $\zeta(0.1+i67.0798)$ =-1.19508... - 0.121962... i  
 $\zeta(0.2+i67.0798)$ =-0.780696... - 0.0722288... i  
 $\zeta(0.3+i67.0798)$ =-0.455914... - 0.0377238... i  
 $\zeta(0.4+i67.0798)$ =-0.200847... - 0.0146334... i  
 $\zeta(0.5+i67.0798)$ = almost zero  
 $\zeta(0.6+i67.0798)$ =0.158698... + 0.00837864... i  
 $\zeta(0.7+i67.0798)$ =0.284629... + 0.0122881... i  
 $\zeta(0.8+i67.0798)$ =0.385089... + 0.0130277... i  
 $\zeta(0.9+i67.0798)$ =0.465744... + 0.0115965... i  
 $\zeta(1.0+i67.0798)$ =0.530986... + 0.00874614... i

$\zeta(0.0+i370.0509)$ =2.79835... - 6.09129... i  
 $\zeta(0.1+i370.0509)$ =1.35910... - 3.86114... i  
 $\zeta(0.2+i370.0509)$ =0.566252... - 2.30540... i  
 $\zeta(0.3+i370.0509)$ =0.171720... - 1.22933... i  
 $\zeta(0.4+i370.0509)$ =0.0165890... - 0.493951...  
 $\zeta(0.5+i370.0509)$ = almost zero  
 $\zeta(0.6+i370.0509)$ =0.0591164... + 0.323433... i  
 $\zeta(0.7+i370.0509)$ =0.154958... + 0.527039... i  
 $\zeta(0.8+i370.0509)$ =0.264407... + 0.647001... i  
 $\zeta(0.9+i370.0509)$ =0.374114... + 0.709130... i  
 $\zeta(1.0+i370.0509)$ =0.476879... + 0.731808... i

$\zeta(0.0+i373.0619)$ =3.13761... + 5.44965... i  
 $\zeta(0.1+i373.0619)$ =1.54354... + 3.44413... i  
 $\zeta(0.2+i373.0619)$ =0.657466... + 2.05097... i

$\zeta(0.3+i373.0619)=0.209954... + 1.09115... i$   
 $\zeta(0.4+i373.0619)=0.0276074... + 0.437580... i$   
 $\zeta(0.5+i373.0619)=$  almost zero  
 $\zeta(0.6+i373.0619)=0.0572810... - 0.285763... i$   
 $\zeta(0.7+i373.0619)=0.156750... - 0.465279... i$   
 $\zeta(0.8+i373.0619)=0.272383... - 0.570942... i$   
 $\zeta(0.9+i373.0619)=0.389127... - 0.625732... i$   
 $\zeta(1.0+i373.0619)=0.498766... - 0.645933... i$

$\zeta(0.0+i373.8649)=-4.69228... - 1.11954... i$   
 $\zeta(0.1+i373.8649)=-2.81909... - 0.575812... i$   
 $\zeta(0.2+i373.8649)=-1.61278... - 0.260713... i$   
 $\zeta(0.3+i373.8649)=-0.834547... - 0.0932396... i$   
 $\zeta(0.4+i373.8649)=-0.330066... - 0.0185496... i$   
 $\zeta(0.5+i373.8649)=$  almost zero  
 $\zeta(0.6+i373.8649)=0.219307... - 0.0131603... i$   
 $\zeta(0.7+i373.8649)=0.368433... - 0.0425648... i$   
 $\zeta(0.8+i373.8649)=0.473100... - 0.0782708... i$   
 $\zeta(0.9+i373.8649)=0.549508... - 0.114299... i$   
 $\zeta(1.0+i373.8649)=0.607790... - 0.147249... i$

$\zeta(0.0+i375.8259)=-0.218830... + 3.12037... i$   
 $\zeta(0.1+i375.8259)=-0.266981... + 1.75691... i$   
 $\zeta(0.2+i375.8259)=-0.241676... + 0.928633... i$   
 $\zeta(0.3+i375.8259)=-0.176271... + 0.436800... i$   
 $\zeta(0.4+i375.8259)=-0.0915171... + 0.154224... i$   
 $\zeta(0.5+i375.8259)=$  almost zero  
 $\zeta(0.6+i375.8259)=0.0908625... - 0.0770281... i$   
 $\zeta(0.7+i375.8259)=0.177045... - 0.108828... i$   
 $\zeta(0.8+i375.8259)=0.256527... - 0.115212... i$   
 $\zeta(0.9+i375.8259)=0.328557... - 0.108237... i$   
 $\zeta(1.0+i375.8259)=0.393117... - 0.0950879... i$

$\zeta(0.0+i376.3241)=1.34696... - 3.00200... i$   
 $\zeta(0.1+i376.3241)=0.589113... - 1.77668... i$   
 $\zeta(0.2+i376.3241)=0.196119... - 0.992622... i$   
 $\zeta(0.3+i376.3241)=0.0220603... - 0.496568... i$   
 $\zeta(0.4+i376.3241)=-0.0244584... - 0.187743... i$   
 $\zeta(0.5+i376.3241)=$  almost zero  
 $\zeta(0.6+i376.3241)=0.0609312... + 0.109993... i$   
 $\zeta(0.7+i376.3241)=0.137822... + 0.170510... i$   
 $\zeta(0.8+i376.3241)=0.218802... + 0.199953... i$   
 $\zeta(0.9+i376.3241)=0.297363... + 0.210233... i$   
 $\zeta(1.0+i376.3241)=0.370234... + 0.209009... i$

$\zeta(0.0+i378.4367)=-7.46232... - 0.0986345... i$   
 $\zeta(0.1+i378.4367)=-4.60008... - 0.101930... i$

$\zeta(0.2+i378.4367)=-2.68900... - 0.0872539... i$   
 $\zeta(0.3+i378.4367)=-1.41405... - 0.0619916... i$   
 $\zeta(0.4+i378.4367)=-0.564659... - 0.0316043... i$   
 $\zeta(0.5+i378.4367)=$  almost zero  
 $\zeta(0.6+i378.4367)=0.374144... + 0.0305809... i$   
 $\zeta(0.7+i378.4367)=0.620883... + 0.0583442... i$   
 $\zeta(0.8+i378.4367)=0.782475... + 0.0825702... i$   
 $\zeta(0.9+i378.4367)=0.887243... + 0.102944... i$   
 $\zeta(1.0+i378.4367)=0.954172... + 0.119477... i$

## References

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### key words

Riemann zeta function, non-trivial zero point,