On Android

- < Android 13 can use only pre-built shaders:
  BitmapShader, **LinearGradient**, etc

- with Android 13 can use
  programmable **RuntimeShader**s written in AGSL

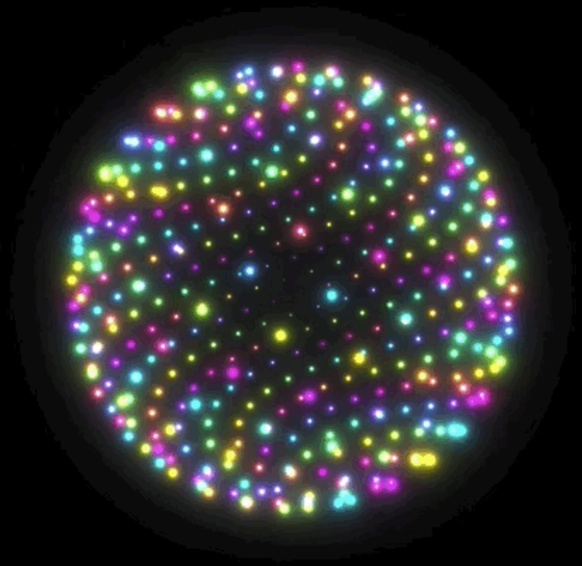
- GPU level effects without direct OpenGL

- pass shaders as ***string*** into a **RuntimeShader**
  object!

```
val shader = RuntimeShader("""
  // Shader code here in AGSL
 """
)

// Make a Brush
val brush = ShaderBrush(shader)

// Canvas() / DrawScope
onDraw = { value →
 // Use it to paint anything!
 drawRect(brush)
}
```



GLSL - shadertoy.com

Shader Inputs

```
uniform vec3      iResolution;           // viewport resolution (in pixels)
uniform float     iTime;                 // shader playback time (in seconds)
uniform float     iTimeDelta;            // render time (in seconds)
uniform int       iFrame;                // shader playback frame
uniform float     iChannelTime[4];       // channel playback time (in seconds)
uniform vec3      iChannelResolution[4]; // channel resolution (in pixels)
uniform vec4      iMouse;                // mouse pixel coords. xy: current (if MLB do
uniform samplerXX iChannel0..3;          // input channel. XX = 2D/Cube
uniform vec4      iDate;                 // (year, month, day, time in seconds)
uniform float     iSampleRate;           // sound sample rate (i.e., 44100)
```

```
//https://twitter.com/XorDev/status/1475524322785640455
void mainImage( out vec4 fragColor, in vec2 fragCoord ) {
  vec4 o = vec4(0.0);
  vec2 p = vec2(0.0), c=p, u=fragCoord.xy*2.-iResolution.xy;
  float a;
  for (float i=0.0; i<4e2; i++) {
    a = i/2e2-1.;
    p = cos(i*2.4+iTime+vec2(0.0,11.0))*sqrt(1.-a*a);
    c = u/iResolution.y+vec2(p.x,a)/(p.y+2.);
    o += (cos(i+vec4(0.0,2.0,4.0,0.0))+1.)/dot(c,c)*(1.-p.y)/3e4;
  }
  fragColor = o;
}
```

SKSL (~AGSL) - shaders.skia.org

Shader Inputs

```
uniform float3 iResolution;     // Viewport resolution (pixels)
uniform float  iTime;           // Shader playback time (s)
uniform float4 iMouse;          // Mouse drag pos=.xy Click pos=.zw (pixels)
uniform float3 iImageResolution; // iImage1 resolution (pixels)
uniform shader iImage1;         // An input image.
```

```
// Source: @XorDev https://twitter.com/XorDev/status/1475524322785
vec4 main(vec2 fragCoord) {
  vec4 o = vec4(0.0);
  vec2 p = vec2(0.0), c=p, u=fragCoord.xy*2.-iResolution.xy;
  float a;
  for (float i=0; i<4e2; i++) {
    a = i/2e2-1.;
    p = cos(i*2.4+iTime+vec2(0.0,11.0))*sqrt(1.-a*a);
    c = u/iResolution.y+vec2(p.x,a)/(p.y+2.);
    o += (cos(i+vec4(0.0,2.0,4.0,0.0))+1.)/dot(c,c)*(1.-p.y)/3e4;
  }
  return o;
}
```